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AGRICULTURAL, MANUFACTURING, AND COMMERCIAL.

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CHAPTER THIRD.

REVIEW OF THE COMMERCIAL POLICY OF THE LAST THIRTY YEARS.

I NOW proceed to show in detail the consumption of various commodities, of foreign and domestic production. In doing so, it will be necessary in some cases, to arrive at a correct understanding, to make allowances similar to those above given: my object being that of showing what was the power to *consume* that was derived from the power to *produce* commodities to be given in exchange for those which were consumed.* It would be proper to do this in all, but the effect would be to render the whole somewhat complicated, besides involving much labour. In giving the imports of the period from 1834 to 1841, they will always be accompanied with the mark of *minus* one-fifth, so as to show the amount consumed and *paid for*. In giving those of 1845–6 and 1846–7, they will, in some important cases, be accompanied with that of *plus* one-twentieth, so as to show the quantity of merchandise imported in a previous period, and *then paid for* by the cancelling of certificates of debt. Those of 1848 will have the mark of *minus* one-seventh, to show the amount paid for by the re-export of nine millions of foreign merchandise in the form of specie, and the export of eight millions of certificates of debt. It was my intention to give the business of the year ending June, 1849, which would have been very instructive, as in that we purchased $22,000,000 of goods on credit, but have been unable to obtain the materials therefor from the Treasury.

The total value of pig, bar and manufactured IRON, of every description, imported into the Union, since 1821, has been as follows:—

Years ending.			Per head.
Sept. 30, 1821 to 1829, average,		$5,400,000	48 cents.
" 1830,		5,900,000	46 "
" 1831,		7,200,000	54 "
" 1832,		8,800,000	64 "
" 1833,		7,700,000	55 "
" 1834,		8,500,000	59 "
" 1835 to 1841,	$10,000,000 — $\frac{1}{5}$,	8,000,000	49 "
" 1842 to June 30, 1843, average,		5,500,000	30 "
June 30, 1844,		5,700,000	30 "
" 1845,		9,000,000	46 "
" 1846,	$5,830,000 + $\frac{1}{20}$	6,120,000	31 "
" 1847,	+ $\frac{1}{20}$	9,000,000	44 "
" 1848,	12,500,000 — $\frac{1}{7}$	10,800,000	50 "
" 1849,	13,833,094		

* See December number, page 331.

We see here, that the value imported and *paid for*, largely increased from from 1830 to 1834, under the protective tariff of 1828; that it diminished considerably between 1834 and 1841, and that it reached the lowest point in 1841–2 and 1842–3. Thenceforward it rose, and the year 1846–7 shows an advance of about fifty per cent. from the lowest point. It is therefore obvious, that the power to pay for foreign iron increased under protection, and diminished with its withdrawal. I give now the *quantity* of various kinds of IRON imported:

	Pig, tons.	Old, tons.	Rolled, tons.	Hoop, tons.	Steel, tons.	Ham'd, tons.	Total, tons.	Pr h. lbs.
1821 to 1829, average,	1550	—	5400	1500	1200	26,000	35,650	7
1830,	1129	—	6449	1038	1223	30,693	40,532	7
1831,	6448	—	17,245	2532	1710	23,308	51,243	8⅔
1832,	10,151	—	20,387*	2853	2146	38,150	73,687	12
1833,	9330	998	28,028*	3350	2131	36,129	79,961	13
1834,	11,113	1617	28,896*	2214	2431	31,784	78,055	12
1835 to 1841, average — ⅕	8800	640	36,000*	2600	2150	24,000	74,190	10
1842–3, average,	14,500	500	46,000†	2900	2400	14,750	81,050	10
1844,	26,050	5770	46,000	3600	2800	17,500	101,720	12
1845,	27,000	5800	51,000	5800	2800	18,176	110,576	13
1846,	24,000	2350	24,000	5040	5200	21,800	82,390	9
1847,	27,800	1850	40,000	6000	5400	15,300	96,350	10⅔
1848, — ⅛	44,000	5700	70,000	8300	5850	17,000	150,850	16
1849, Total quantity imported, 317,000 tons; paid for,							260,000	27

The quantity *paid for by our exports* was thus almost doubled before the termination of the second period, in 1834; while it diminished under the compromise, and still further under the revenue system. As the tariff of 1842 came into activity, we find a rapid increase in the power to purchase, until the import became checked by the vast increase in the price abroad, and in the manufacture at home.

DOMESTIC PRODUCTION OF IRON.

In 1810, the whole number of furnaces in the Union was 153, yielding 54,000 tons of metal, equal to 16 pounds per head of the population.

1821, the manufacture was in a state of ruin.

1828, the product had reached 130,000 tons, having little more than doubled in eighteen years.

1829, it was 142,000. Increase in one year, nearly ten per cent.

1830, " 165,000. Increase in two years, more than twenty-five per cent.

1831, " 191,000. Increase in three years, about fifty per cent.

1832, " 200,000, giving an increase in three years of above sixty per cent.

1840, the quantity given by the census was 286,000, but a committee of the Home League, in New York, made it 347,700 tons. Taking the medium of the two, it would give about 315,000 tons, being an increase in eight years of fifty per cent.

1842, a large portion of the furnaces were closed, and the product had fallen to probably little more than 200,000, but certainly less than 230,000 tons.

1846, it was estimated, by the Secretary of the Treasury, at 765,000 tons, having trebled in four years.

1847, it was supposed to have reached the amount of not less than 800,000 tons.

1848, it became stationary.

1849, many furnaces being already closed, the production of the present year cannot be estimated above 700,000 tons; but, from the accumulation of steel and the difficulty of selling it, it is obvious that the diminution next year will be greater.

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* Railroad iron free of duty. † Duty re-imposed.

	Domestic product.	Per head.	Import. Per head.	Total consumption.
1821 to 1829, average, .	90,000	18	7	25
1830, ...	165,000	29	7	36
1831, ...	191,000	33	8⅔	41⅔
1832, ...	210,000	35	12	47
1833, ...	210,000*	33	13	46
1834, ...	210,000*	33	12	45
1835 to 1841, average, .	250,000	35	11	46
1842–1843, average,	230,000	28	10	38
1844, ...	380,000	45	12	57
1845, ...	500,000	58	13	71
1846, ...	765,000	86	9	95
1847, ...	800,000	88	10⅔	98⅔
1848, ...	800,000	86	19	105
Deduct from this the quantity imported in exchange for certificates of debt, and therefore remaining to be paid for at a future time, ...				3
There will remain				102
If now we further deduct from this the accumulation of stock on hand, we shall find the consumption not exceeding that of the preceding year, say				98⅔
1849, ...	650,000	67	32	99
The value imported in this period is $13,800,000, and the amount of debt incurred is $22,000,000, chiefly for this iron. The quantity on hand is variously estimated between 250 and 300 thousand tons. Taking the former, the amount per head would be				26
Which being deducted, would leave the consumption at .			—	73

From 1821 to 1829, the cost of iron, in labour, was high, as is shown in the fact that the consumption was but twenty-five pounds per head. In 1832, it had risen to 47 pounds; but, railroad iron being then freed from duty, the consumption of the two following years fell off, indicating an increased difficulty of obtaining it. Thence to 1841, the average power of consumption appears to have remained almost perfectly stationary; but, in the two following years, we find it receding rapidly. As the tariff of 1842 comes into operation, there is a rapid increase in the power of consumption, indicating a diminution in the amount of labour required for its purchase; and the year 1846–7 shows it attaining a point far higher than ever before known, being almost 100 pounds per head. With the year 1847–8, the domestic production declined in its ratio to population, and the import increased; but the total quantity in market was very little greater than in the previous year, yet the close of that year showed an accumulation of stock on hand. In 1849 we find a rapid increase of import and diminution of production, yet the total quantity brought to market is less per head than in 1846–7, and of that there is already so vast an accumulation that the seaports are filled with it, and the stock on hand at the furnaces is such, that many will be forced to stop work, as numbers have already done.† It is obvious that the difficulty

* Railroad iron, free of duty.

† Pennsylvania is the great iron-producing State of the Union, and we may form some idea of the accumulation of stock, or the diminution of production, there, from the following facts. The pig iron sent to market by the one route of the Chesapeake and Delaware Canal, from the opening of navigation to the first of September, 1848, amounted to 24,000 tons; whereas, in the same period of 1849, it fell to little over 12,000 tons, and the bar iron from 5000 to 1250 tons.

of obtaining iron is increasing, and that the consumption is rapidly diminishing, with a tendency to still further diminution.

The important facts to be derived from this examination are—first, the small increase of importation that results, even temporarily, from the abolition of the duty. During the period from 1830 to 1832, railroad iron paid duty, and yet the importation trebled in that time, and the last year was far the greatest of the three. For nine years after, it was totally free from duty; and, although much of that which was imported for railroads is said to have been used for other purposes, the increase averages but seventy per cent. By the tariff of 1841,* railroad iron was rendered subject to duty, and the import of rolled iron in 1842 and 1843 was 46,000 tons, being two-thirds more than was imported free of duty in 1834.

Second. That, under the protective tariff of 1828, the total consumption, per head, increased, in four years, fifty per cent. That, under the system which prevailed from 1832 to 1842–3, consumption was almost stationary, and was probably less per head than it had been at the commencement of the period. That, under the tariff of 1842, the average consumption increased in the first year from thirty-nine to fifty-seven pounds, and that, in 1846 and 1847, it attained the height of almost one hundred pounds per head, exceeding by 150 per cent. the consumption of the free trade period of 1842–3.

If, now, we look at the single article of railroad iron, we find similar results. Up to 1842, not a single ton of it had ever been made in this country, and yet the average consumption of rolled iron, of every description, in the ten years from 1832 to 1842, free of duty as it was, was but about 36,000 tons. Commenced only in 1843, the manufacture of railroad bars in 1845 had already reached about 50,000 tons, and, in 1847, it had attained nearly 100,000 tons, and yet the average import of rolled iron for the four years was nearly as great as before. The domestic production has now fallen almost to nothing, and yet the import has been only 174,000, of which, it is said, there is now on hand a supply adequate to meet the demand, such as it is at present, for two years to come.

The questions to be settled are—Which is the system under which iron is most cheaply furnished? Which is the one under which it is most readily obtained by those who desire to use it? If free-trade be the one, then the power to import, under it, ought to grow more rapidly than the power to produce diminishes; but we see here that the power to import diminishes with the power to produce, and grows with the growth of the power of production, being greatest under protection.

COAL.

	Anthracite. Tons.	Foreign. Tons.	Total. Tons.	Consumption per 1000 of populat'n.
1821 to 1829, average,	37,000	30,000	67,000	6 tons.
1830, ...	142,000	54,000	196,000	15
1831, ...	216,000	34,000	250,000	19
1832, ...	318,000	66,000	384,000	28
1833, ...	395,000	85,000	480,000	34
1834, ...	451,000	67,000	518,000	35
1835 to 1836, . . .	671,000	78,000	749,000	50
1837, ...	881,000	140,000	1,021,000	64
1838 to 1841, . . .	850,000	145,000	995,000	58
1842, ...	1,108,000	141,000	1,249,000	69

* This was a provisional tariff, having for its sole object the increase of revenue, and was limited to alterations in a few articles.

	Anthracite. Tons.	Foreign. Tons.	Total. Tons.	Consumption per 1000 of populat'n.
1843, ...	1,312,000	55,000	1,367,000	74
1844, ...	1,631,000	87,000	1,718,000	90
1845, ...	2,023,000	86,000	2,109,000	108
1846, ...	2,343,000	156,000	2,499,000	125
1847, ...	2,982,000	148,000	3,130,000	152
1848, ...	3,089,000	196,000	3,285,000	156
1849, ...	3,200,000		3,400,000	156

In this case, it has been necessary to separate the years 1842 and 1843, because of the whole of the latter coming within the action of the tariff of 1842,* the account of the domestic production being made up to the close, instead of the middle of the year, as in the case of imports.

The facts that here present themselves are worthy of careful consideration. When we produced little coal, we imported little, the total consumption being only six tons per thousand of the population. As the production grew, the import grew, and thus, in 1846 and 1847, when we produced *eighty* times as much as in the period from 1821 to 1829, we imported five times more.

From 1829 to 1834, and thence to 1837, the increase of consumption was rapid. Thence to 1841, it diminished ten per cent. In 1842, it was scarcely higher than it had been five years before. In the five years which followed, it rose from 69 to 152 tons, showing a rapid diminution in the quantity of labour required to be given in exchange for it. In 1848, under the action of the tariff of 1846, the consumption became almost stationary, and it is now rapidly diminishing, showing a great increase in the quantity of labour required to be given in exchange for it. The power of consumption grew rapidly under protection, and it is now diminishing rapidly with its withdrawal.

With every step in the growth of the home production of coal, the money price has steadily diminished. That of a ton of anthracite in 1826, in Philadelphia, was six, eight, and sometimes ten dollars, and yet the whole import was only 970,000 bushels, or about 30,000 tons. In 1846, the price of anthracite was about four dollars, and yet the import was 156,000 tons. It would appear from this, that when a nation is capable of supplying itself, other nations, desiring to sell, must come to them and sell at the lowest price, and the consumption is large; but when it cannot supply itself, it must go abroad to seek supplies, and pay the highest price, and then consumption is small. Applying this to iron, we find that when we had to seek abroad for nearly all our supply, it sold at prices twice or thrice as great as those at which it is now obtained.

In 1846 and 1847, notwithstanding the vast increase in the supply of coal, so great was the consumption that we had to go abroad to make up the deficiency, and to pay the high prices which our own demand largely tended to produce, a state of things which could not have happened had we been prepared to supply the whole demand.

It remains to be seen whether the converse of this proposition may not be true, to wit, that when a nation makes a market at home for nearly all its products, other nations have to come and seek what they require, and pay the highest price; and that, when it does not make a market at home, markets must be sought abroad, and then sales must be made at the lowest prices. If both of these be true, it would follow that the way to sell at the highest prices and buy at the lowest is to buy and sell at home.

* It came into action on the 30th of August of that year.

COTTON.

IMPORT OF COTTON GOODS.

Years ending			Per head.
September 30,	1821 to 1829, average, ...	$9,454,000	84 cts.
"	1830, ...	7,862,000	61
"	1831, ...	16,090,000	1·21
"	1832, ...	10,399,000	76 } 76 av.
"	1833, ...	7,660,000	54
"	1834, ...	10,145,000	70
"	1835 to 1841, ... 12,000 — ⅛...	9,600,000	59
"	1842 to June 30, 1843, average,.....	7,184,000	39
June 30,	1844, ...	13,641,000	72
"	1845, ...	13,863,000	71
"	1846, ...	13,500,000	67½
"	1847, ...	16,071,000	78
"	1848, ... $18,412,000 — ¼...	15,582,000	74
"	1849, not obtained.		

The number of yards imported in several years is thus given. I have been unable to complete this table, or it should be given in full. I give all I have met with :

1831, ...	68,577,000
1835, ...	53,974,000
1836, ...	56,931,000
1837, ...	23,774,000
1838, ...	20,240,000
1839, ...	42,418,000
1840, ...	20,011,000
1842–3, ...	8,936,000
1844–5, ...	34,500,000
1845–6, ...	36,800,000

The differences here appear much more striking than in the table above. The diminution of consumption under the free-trade system is very regular, and the increase under protection nearly as much so.

Owing to the variety of cotton goods imported, it is difficult to estimate the weight of cotton contained in them ; but, in the following table, I have made a rude estimate, with a view to show the growth of domestic consumption. It must be borne in mind that a large portion of the foreign commodities are of the finer and more costly descriptions, and that the weight is therefore small when compared with the value.

Crop of	Taken by Northern manufacturers.	Taken by Southern manufactur's.	Per head, domestic.	Per head. foreign.	Total, p. head.
1825–6 to 1829–30, average, bales	110,000	.....	4 lbs.	1¼ lbs.	5¼
1830–31, ...	182,000	.....	5¼	1	6¼
1831–32, ...	173,000	.....	5¼	2	7¼
1832–33, ...	194,000	.....	5½	1¼	6¾
1833–34, ...	196,000	.....	5¼	0¾	6¼
1834–35, ...	216,000	.....	5¾	1¼	7
1835–36, to 1841–42, average, ...	263,000	.....	6½	1	7½
1842–43, ...	325,000	.....	7	0¾	7¾
1843–44, ...	347,000	.....	7¼	1¼	8½
1844–45, ...	389,000	.....	8	1¼	9¼
1845–46, ...	423,000	30,000	9¼	1¼	10½
1846–47, ...	428,000	40,000	9¼	1½	10¾
1847–48, ...	531,000	75,000	12	1½	13½
1848–49, ...	518,000	100,000	11 3/16		

In estimating the domestic consumption, I have throughout taken the bale at four hundred pounds, although aware that there has been a gradual increase of the weight. This change would be important to be considered, if it were my object to compare 1847 with the distant year 1831; but it is unimportant when the object in view is the comparison of years which are near together, as is the fact.

The results in this case correspond almost precisely with those obtained from the examination of iron and coal. The home consumption of the crop of 1834–5, per head, was almost fifty per cent. greater than the average of previous years, while the import remained almost undisturbed. Under the Compromise, consumption appears to have remained almost perfectly stationary, the increase of domestic production being compensated by diminished importation. In 1842–3, the consumption per head was scarcely greater than it had been eight years before, when it should have doubled. With the operation of the tariff of 1842, we find the consumption of domestic products 75 per cent. greater, while the import is also almost doubled. It would appear obvious, that the power to obtain clothing in return for labour increased in both protective periods, and diminished with the approach to free trade. With 1848–9, the demand for Northern manufactures diminished; and, as many mills are now closed that were at work but a few months since,* there is reason to believe that the power to obtain clothing in return for labour is in a course of gradual diminution.

A portion of the cotton worked up at home has been exported, and was therefore not consumed at home. To have made allowance for this would have made the table very complicated, and it did not appear to be necessary, as the proportions were well preserved, having been about a million of dollars when the home consumption was 100,000 bales, two millions when it rose to 200,000, three millions out of 300,000, and five millions out of 500,000 bales.

WOOL.

IMPORT OF WOOLLENS.

Years ending			Per head.
September 30,	1821 to 1829, average, . .	$8,900,000	79 cents
"	1830, ...	5,766,000	45
"	1831, ...	12,627,000	95
"	1832, ...	9,992,000	75
"	1833, ...	13,262,000	93
"	1834, ...	11,879,000	82
"	1835 to 1841, av., $13,950,000 — ⅕	11,160,000	69
"	1842 to June 30, 1843, . .	6,300,000	34
June 30,	1844, ...	9,475,000	50
"	1845, ...	10,666,000	55
"	1846, ...	10,089,000	50
"	1847, ...	10,570,000	51
"	1848, . . $15,230,000 — ¼	13,000,000	62
"	1849, not obtained		

* Within the last six months there have been been many failures among those engaged in the business; and, in these cases, the mills are not only closed, but likely so to remain.

The import into Cincinnati may be taken as evidence of the course of affairs in the West, and here we have the same result:

1846–7, ...	12,528 bales.
1847–8, ...	13,476
1848–9, ...	9,058

We see, thus, that notwithstanding the extreme lowness of price, the consumption has diminished.

Prior to the passage of the tariff of 1824, the woollen manufacture was in a very depressed condition; and, in 1825, the number of sheep was only fourteen millions,* producing about thirty-five millions of pounds of wool. Thenceforward the number increased, and the crop of 1829, 1830 and 1831, was estimated at fifty millions of pounds, the produce of twenty millions of sheep. At the close of 1834, there had been a further increase,* but to what extent we are not informed; but the value of the woollen manufacture was estimated at 65 millions of dollars against 40 millions in 1831. In 1840, the census returns show but 19,311,000, the number having diminished while the population had largely increased. The depression of 1841–2 was accompanied by the sacrifice of sheep to a considerable extent; yet so rapid was the subsequent change, that the number, in 1845, was estimated at twenty-five millions,† and in 1848 at twenty-eight millions. Ohio had, in 1846, only 2,065,000; but, in 1848, the number had risen to 3,677,000. The number in New York, in 1845, was 6,443,000, and, subsequently to that date, it had largely increased.

The deliveries on the New York canals, and at Pittsburgh, in 1840, were one-fifth of the total production by the census; and, since that date, they are thus stated—‡

1841,	5,094,035	1845,	13,267,609
1842,	4,823,881	1846,	12,269,537
1843,	5,713,289	1847,	16,325,987
1844,	6,798,769	1848,	11,665,540

Even this does not mark the whole increase, as the woollens factories of the interior of New York and other States absorb much that would otherwise pass on the canals, destined for distant places.

With these very imperfect data, we may now form some estimate of the consumption of this most important commodity. In estimating the weight contained in the cloth imported, I have taken it as being worth one dollar per pound, and therefore the figures which represent the *value* per head, give also the *weight* per head.

Average of	Millions of sheep.	Pounds of wool.	Imports. Pounds.	Total, domestic manufacture.	Per head.	Total, dom. & for.
1821 to 1829,	15	37,500,000	2,000,000	39,500,000	3.50	4·29
1830,	20	50,000,000	669,000	50,669,000	3·90	4·35
1831,	21	52,500,000	5,622,000	58,122,000	4·40	5·35
1832,	22	55,000,000	4,042,000	59,062,000	4·40	5·15
1833,	23	57,500,000	950,000	58,450,000	4·15	5·08
1834,	24	60,000,000	2,341,000	62,341,000	4·30	5·12
1835 to 1841,	22	55,000,000	10,000,000	65,000,000	4·	4·69
1842 and 1843,	19	48,000,000	7,500,000	55,500,000	3·	3·34
1844,	22	55,000,000	23,800,000	78,800,000	4·10	4·60
1845,	24	60,000,000	28,800,000	88,800,000	4·50	5·05
1846,	26	65,000,000	16,500,000	81,500,000	4·10	4·60
1847,	27	67,500,000	8,460,000	75,960,000	3·70	4·20
1848,	28	70,000,000	11,380,000	81,380,000	3·90	4·52
1849,						

By the tariff of 1846, the duty on many descriptions of foreign wool was raised, while that on cloths was lowered; which accounts for the great diminution in the quantity imported.

That this is very incorrect there is no doubt; but it will enable us to make some comparison between the increase of imports as compared with the diminution of home production. From 1830 to 1834, the production

* Pitkin's Statistics, p. 488.

† Patent Office Report, 1847, p. 213.

‡ Merchant's Magazine, Vol. XXI., p. 217.

grew, and the import was large. From 1835 to 1841, the former largely diminished in its ratio to population; and the foreign cloths *paid for* in that period fell to sixty-nine cents per head. In the revenue period, from June, 1841, to June, 1843, production was very small, and the import fell to about thirty-four cents per head. In the four succeeding years, both grew rapidly. Under the tariff of 1846, there is a slight increase of import; but the home manufacture has diminished. The power to obtain cloth in exchange for labour has, therefore, invariably grown in the protective periods, and diminished with every approach to free trade.

PRODUCTION OF LEAD.

The arrivals at New Orleans have been as follows:—

	Pigs.		Pigs.		Pigs.
1828–'29,* average,	164,000	1834, . . .	202,000	1845, . .	732,000
1830, . .	254,000	1835 to 1841, .	298,000	1846, .	785,000
1831, . . .	151,000	1842, . . .	473,000	1847, . .	659,000
1832, . .	122,000	1843, . .	571,000	1848, .	606,000
1833, . . .	180,000	1844, . . .	639,000	1849, . .	508,000

We see here that the average of the seven years, from 1835 to 1841, was little greater than the product of 1830. The temporary tariff of September, 1841, raised the duty to five cents per pound, and production rose to almost 800,000 pigs. Since the passage of that of 1846, it has fallen to 500,000, and for this diminished supply there is little demand.

We have thus far seen that the application of labour and capital to the opening of mines, the erection of furnaces, mills, and factories, and to the conducting of such works, was arrested at the close of 1834, and that it did not recommence until after the passage of the tariff of 1842. We have also seen that it increased rapidly from 1843 to 1847, that it became stationary in 1848, and is now retrograding. Both seek to be employed, and if denied employment at home they must seek it abroad. If employed at home, there is a tendency to concentration and combination of action. If sent abroad, there is a tendency to dispersion, with diminished power of combination. One of these courses tends to increase the reward of labour, the other to diminish it. With a view to ascertain the effects of the two systems, I give,

First, The amount of IMMIGRATION, as showing how far the wages of labour tended to invite the people of foreign nations to come and reside amongst us, and,

Second, The amount of SHIPPING built, to show how far the establishment of an import trade of MEN, the cargo that pays the highest freights, tended to increase the facilities provided for the export of merchandise:—

IMIGRATION.

1821 to 1829, . .	12,000	1842–3, . . .	88,133
1830, ...	27,153	1844, ...	74,607
1831, ...	23,074	1845, . . .	102,415
1832, ...	45,287	1846, ...	147,051
1833, ...	56,547	1847, . . .	234,742
1834, ...	65,335	1848, ...	229,492
1835 to 1841, . .	67,520	1849, not obtained	

* These are the earliest years for which I have met with any accounts.

	Total shipping built. tons.	Per thousand. of population.	Steamers built.	Per million of population.
1821 to 1829, average,	90,000	8 1823–29	35	3·1
1830,	58,000	4·5	37	3
1831,	85,000	6·4	34	2·6
1832,	144,000	10·5	100	7·2
1833,	161,000	11·4	65	4·6
1834,	118,000	8·1	68	4·7
1835 to 1841,	108,000	6·6	92	5·7
1842–3,	91,000	5	108	5·8
1844, (nine months,)	103,000=137,000	7·2	163=217	11·4
1845,	146,000	7·5	163	8·5
1846,	188,000	9·4	225	11·5
1847,	243,000	11·8	198	9·7
1848,	316,000	15	175	8·3
1849,	256,000	11·8		

We see here a large increase in the years from 1830 to 1834, followed by a gradual diminution until we reach 1843, after which the rise is very rapid.

On a former occasion, I stated that immigration was not affected by changes of policy until after the lapse of more time than was required for other of the subjects we have had under consideration. A change tends to raise or depress the value of labour—to raise or depress the price of men—and after a rise has been effected, men come to offer their labour for sale. It will be seen that the number in 1831 was less than in 1830, and that it was not until 1832 that it rose. With the exception of 1835, it continued to rise until 1836–7, when it reached 78,083, after which it fell. In 1843–4, it felt the effect of the disastrous year 1842, and the number was only 74,000; and it was not until 1844–5 that it began to grow rapidly. At the present moment it is large, because of the great demand for labour in the years that have passed, but it is now feeling the effect of the present diminished demand, and consequent fall of wages.

Such, likewise, is the case with shipping. The first effect of a rise of wages is to increase the power to obtain the necessaries of life, and it is not until after that shall have been done that the power to consume foreign commodities tends materially to increase. The increase of ship-building did not commence until 1832. It fell off in 1838. Thus far the movement is precisely the same as that of immigration. It recommenced in 1844, somewhat in advance of immigration. It is now maintained by that, and that alone, and when that is falling off, it must fall too. The close connection between the power to secure valuable return-freights and the power to build ships, is shown in the following table, in which the movements of both are shown:—

	Immigration.	Shipping built.		Immigration.	Shipping built.
1821–31, aver.,	14,000	87,000*	1843,	75,000	64,000
1832,	45,000	144,000	1844,	74,000	140,000
1833,	56,000	161,000	1845,	102,000	146,000
1834,	65,000	118,000	1846,	147,000	188,000
1835,	53,000	60,000	1847,	234,742	246,000
1836,	62,000	113,000	1848,	229,492	316,000
1837,	78,000	122,000	1849,	not obtained	
1838–42, aver.,	76,000	120 000			

The amount of shipping at present *employed* is, probably, less than it was two years since. A vast quantity now lies idle in the ports of California, and it is to replace it that ships are now being built.† How far the immigration

* Average of last two years only 71,000.

† The reason for now building ships may be found in the fact stated in the following paragraph, which I take from one of the papers of the day:—

"It is a remarkable fact, that of all the ships arrived in the bay of San Francisco from

of the ensuing year is likely to afford inducements for increasing our tonnage may be judged from the following comparative view of the arrivals at New York in the last four months of the two past years, as compared with the present one, furnished by the Commissioners of Immigration :—

September, October, November, and December,*	1847.	1848.	1849.
	44,137	61,310	50,428

Instead of an increase of about forty per cent., there is a diminution of almost twenty per cent.; and that this decrease must go on, will be obvious from the facts contained in the following paragraph, which I take from the *New York Herald*:—

"EMIGRATION TO EUROPE.—The fine and well-tried packet-ship, Ashburton, sailed yesterday for Liverpool, having on board 104 passengers, who having taken a glimpse at 'the land of liberty,' and not finding it the El Dorado they expected, came to the conclusion of returning homeward. They were principally natives of Ireland. The Jamestown and Constellation sail to-morrow with similar cargoes."

Every man who thus returns prevents the emigration of a hundred that would otherwise have crossed the Atlantic.

I propose now to show the tendency to DEPOPULATION, as marked by the sale of PUBLIC LANDS, compared with immigration :—

	Land sold. Acres.	Per head of Immigration.		Land sold. Acres.	Per head of Immigration.
1821–29, average,	825,000	69	1843,	1,605,000	21
1830,	1,244,000	46	1844,	1,754,000	23
1831,	1,929,000	83	1845,	1,843,000	18
1832,	2,777,000	61	1846,	2,263,000	15
1833,	2,462,000	44	1847,	2,521,000	11
1834,	4,658,000	70	1848, (3 qrs.)	1,448,000	9‡
1835–41, average,	7,150,000	105†	1849, not obtained.		‡
1842,	1,129,000	11			

At no period of our history has the process of depopulation proceeded with the vigour that is now manifested. Emigrants from Europe are now returning home, disappointed; while the emigration to the West is almost marvellous. The quantity of land sold does not, as I understand, give any clue to the quantity occupied, because of the facilities afforded by the law to squatters.

It is estimated, we are told, that from thirty thousand to fifty thousand have been added to the population of Iowa within *six weeks*, and that, by the close of navigation, the population will have increased one-fourth since the 1st of September. Such is the course of things in regard to all the new States, west and south-west; and, if to this be added the emigration to California, it may be doubted if the population of the old States will be as large at the close of the year as it was at the commencement.

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the Atlantic ports, some of which have been anchored there for near four months, not one is advertised for a return trip home. This, of course, is easily accounted for. There is no freight to come back, but passengers and gold dust, and as these mostly prefer the steamers, the ships have nothing to do but to wait and see what circumstances may do for them. Meanwhile, the absence of so many vessels, and the improbability of an early return, are having a strengthening influence upon home freights. Rates ere long must rapidly advance; and were it spring time now, instead of fall, I think it would be difficult to negotiate engagements at present prices."

A vast amount of capital has been locked up in ships that are idle, and others must now be built to take their place. If they were back again, ship-building would now be entirely suspended.

* December, 1849, estimated by the Commissioners at 9000.

† To this must be added the occupation of Texas and Oregon.

‡ To these must be added the occupation of California.

PRODUCTION OF FOOD.

The power to supply food to those who come to live amongst us, and also to send it abroad in exchange for other commodities, may be taken as some evidence of the productiveness of labour applied to its cultivation, and I therefore give the following statement of the export and import of wheat and flour, in bushels of the former:—

	Exports.	Imports.	Population by immigration.	Depopulation.	
1821–29, average,	4,400,000		12,000	69	
1830,	6,100,000		27,000	46	
1831,	9,441,000		23,000	83	
1832,	4,407,000		45,000	61	
1833,	4,811,000		56,000	44	
1834,	4,113,000		65,000	70	
1835,	3,914,000	311,000	63,000		
1836,	2,529,000	650,000			
1837,	1,610,000	4,000,000			
1838,	2,247,000	927,000		105	Texas and Oregon.
1839,	4,712,000		72,000		
1840,	11,198,000				
1841,	8,447,000				
1842,	7,237,000		88,000	11	
1843,	4,519,000			21	
1844,	7,751,000		74,000	23	
1845,	6,365,000		102,000	18	
1846,	13,061,000		147,000	15	
1847,	26,312,000	20,000	234,742	11	Mexico and
1848,	12,631,000	369,000	229,000	9	California.
1849,	not obtained.				

It is here shown that, notwithstanding the rapid growth of manufactures in the period from 1830 to 1834, the export of food was not only maintained but it increased. The tendency to depopulation had diminished, and the power to obtain iron to assist in the work of cultivation had increased. Thereafter, with the increasing tendency to depopulation, as immigration and manufactures and the power to obtain iron became stationary, the production of food so far diminished that the price rose to such a point as to render it profitable to import it; and it may be doubted if, notwithstanding the increase of numbers, the whole quantity produced between 1835 and 1840 was greater than in the five previous years. From 1843, we find it gradually increasing, notwithstanding the vast amount of labour employed in producing coal, iron, cotton and woollen goods, ships, steamboats, &c. How great was the increase may be seen by the following comparison of the returns under the census of 1840, and the Patent Office estimates for 1847:—

	Wheat.	Barley.	Oats.	Rye.	Buckwh't.	Ind. Corn.	Totals.
1840,	84,823,000	4,161,000	123,071,000	18,645,000	7,291,000	377,531,000	615,522,000
1847,	114,245,000	5,649,000	167,867,000	29,222,000	11,673,000	539,350,000	867,826,000
Increase,	29,422,000	1,488,000	44,797,000	10,577,000	4,382,000	161,819,000	252,304,000

We have here an increase of no less than 40 per cent. in seven years, during which the increase of population was but 23 per cent. Equally divided among the whole people, there would be 36 bushels per head in the one case, and 42 in the other; and thus we see that the increase in the facility of obtaining the machinery of cultivation is attended by increase in the product of cultivation; while increase in the power to produce cotton and woollen cloth enables the farmer to obtain for each bushel produced a larger amount of clothing than before.

The net export is as follows, per head of the population:—

1821 to 1829, . . ·39	1834, . . . ·29	1845, . . . ·33
1830, . . . ·47	1835 to 1841, . ·25	1846, . . . ·65
1831, . . . ·71	1842–3, . . . ·31	1847, . . . 1·28
1832, . . . ·32	1844, . . . ·41	1848, . . . ·60
1833, . . . ·35		

We see, thus, that with the exception of the year of the famine in Ireland, it has never reached a bushel per head, and that it has invariably been largest in the periods of protection—those periods in which the largest and most valuable home freights could be obtained. With the approach to free trade the power to maintain trade has diminished; and as we have receded from it and have approached protection, it has increased with the growth of immigration.

The effect of this is seen in the constantly increasing quantity of Canadian produce that passes through New York on the way to England. It is stated that while in 1848 only 50,000 barrels of Canadian flour passed through New York, the quantity in 1849 that came through by the single route of Oswego was 200,000 barrels, and that there were, in addition, 623,000 bushels of wheat. This, being of foreign production, has, of course, to be deducted from the amount of exports; but if the import of MEN should diminish, freights outward must rise, and the tendency to send flour or wheat to market through the ports of the Union will pass away.

What was, prior to the census of 1840, the production of grain, it is not now possible to ascertain; but we know that, in the period from 1830 to 1834, prices were moderate and consumption was large. It is not probable that it was as much per head as was given by the census for 1840, because the increased facilities of transportation in the latter period enabled the farmer to give more of his labour to cultivation. If it be taken at thirty bushels per head, it will probably not vary greatly from the truth. In the following period, production was so small that prices rose to a point that permitted importation from Europe; and the advance so far exceeded that of wages as to cause almost universal disturbance between employers and workmen. It may be doubted if it then exceeded twenty-five bushels per head. By degrees, the tendency to depopulation diminished; and, in 1840, we find it thirty-six bushels, to rise to forty-two in 1847. The same causes that diminished production in 1836 are now again at work. Immense numbers of people are in motion changing their places of labour; and those that have gone to California, New Mexico, the Salt Lake, &c., can scarcely be taken at less than a hundred thousand. These men are not now producers; and thus, while we have this year added to our population 280,000 persons from abroad requiring to be fed, we have exported great numbers who have not only ceased to be producers, but have taken with them vast quantities of food. It may fairly be doubted if the product of this year, per head, exceeds thirty-eight to forty bushels; and hence it is, in part, that the prices are even thus far maintained. Nevertheless, there is a gradual tendency to a fall of prices, showing a power of consumption diminishing in a greater ratio than that of production.

That the power to obtain food in return to labour diminished greatly between 1835 and 1839 must be within the recollection of all who were familiar with the events of that period. Never has there been experienced in this country so much anxiety relative to the result of the harvest as was felt in 1838. From that time, the tendency to dispersion diminished; and, in 1839 and 1840, labour commanded good supplies of food, as is obvious from the fact that immigration rose, attaining, in 1841–2, the height of 101,000. The value of labour and food had, however, by that time greatly fallen, and,

in 1842, it fell to a lower point than had been known for twenty years, the consequence of which was, a great diminution in the immigration of the two succeeding years. Thence to 1847, the increase was very rapid; but, in the following year, it became stationary, and is now falling rapidly.

We may now proceed to the next great article of food—

SUGAR.

	Foreign.	Crop of Louisiana.	Total.	Per head.
1821 to 1829,	57,000,000	45,000,000	102,000,000	9
1830,	96,000,000	75,000,000	171,000,000	13⅓
1831,	69,000,000	75,000,000	144,000,000	11
1832,	48,000,000	70,000,000	118,000,000	8⅔
1833,	97,000,000	75,000,000	172,000,000	13
1834,	115,000,000	110,000,000	225,000,000	15½
1835 to 1841, 138,000,000 — ⅕,	110,000,000	100,000,000	210,000,000	13
1842 and 1843,	114,000,000	120,000,000	234,000,000	12⅔
1844,	182,000,000	205,000,000	387,000,000	20
1845,	114,000,000	184,000,000	300,000,000	15½
1846,	108,000,000	150,000,000	258,000,000	13
1847,	232,000,000	246,000,000	472,000,000	23
1848,	244,000,000	220,000,000	464,000,000	22
1849,	not obtained.			

We see here a rapid increase of production from 1829 to 1834, and that it then diminished in actual amount until 1844, and that the average of 1847 and 1848 was considerably more than double that of 1842–3. The power to consume foreign sugar has kept steady pace with the increase in the home supply, giving a total consumption for the year 1846–7 exceeding, by more than 150 per cent., that of the period from 1821 to 1829, and almost double that of 1842 and 1843.

The power of producing food thus kept pace with the power to apply labour and capital to the conversion of food and other raw materials into iron, cloth, and other commodities requisite for the use of man; and thus both kept pace with the tendency to the concentration of population. With every increase in the power of production, consumption grew, and the labourer received larger returns for his labour, producing a tendency to immigration. With every diminution in the power of production, the power to pay for foreign commodities diminished, and hence it was that the early years of the approach to freedom of trade were signalized by the creation of a vast debt, the interest on which has now to be paid.

INTERNAL COMMERCE.

We may now examine how far the power to maintain internal trade waxed or waned with the increased or diminished power of production, for which purpose, I give the TOLLS on the three principal routes between the east and west, and the TONNAGE that passed through the Louisville and Portland Canal. In examining them it will be proper to bear in mind that the receipts from immigrants from Europe, in the last two years, have been prodigious, notwithstanding which there has been a large decrease in the two from which I have been able to obtain complete returns. It follows, of course, that the receipts from merchandise have greatly diminished in their ratio to population. Should immigration continue to fall off, the deficiency in the receipts from these works will become of serious importance to the treasuries of both New York and Pennsylvania.

TOLLS.

	New York Canal.	Per 1000 of population.	Baltimore and Ohio Railroad.	Per 1000 of population.	Penn. Canals.	P. 1000 of population.	Ton'ge, L. & P. Canal.
1826,	$844,000	$73					
1827,	880,000	74					
1828,	829,000	68					
1829,	815,000	65					
1830,	1,042,000	81					
1831,	748,000	56	$31,000				76,000
1832,	1,112,000	81	137,000	9·9			70,000
1833,	1,388,000	98	196,000	13·9	148,000	10·5	170,000
1834,	1,381,000	95	205,000	14·1	306,000	21·1	162,000
1835,	1,482,000	99	263,000	17·6	679,000	45·4	200,000
1836–41	1,655,000	102	349,000	21·5	1,020,000	60·7	223,000
1842,	1,749,000	97	426,000	23·6	903,000	50·0	172,000
1843,	2,081,000	112	575,000	31·0	1,014,000	55·0	232,000
1844,	2,446,000	128	658,000	34·6	1,164,000	61·5	304,000
1845,	2,646,000	135	718,000	37·7	1,154,000	59·1	318,000
1846,	2,756,000	138	881,000	44·0	1,357,000	68·0	341,000
1847,	3,635,000	177	1,101,000	54·0	1,587,000	78	307,000
1848,	3,252,000	155	1,213,000	60·0	1,550,000	73·3	341,000
1849,	3,266,000	150			1,580,000	72·4	

The LAKE TONNAGE in 1834 was . . . . . 28,521 tons.
In 1841 it had risen to only 56,252
1846 it was 106,836
1847, ... 139,399
1848, ... 166,400

We thus see that it increased less than 28,000 tons in the first period of seven years, it has gained 110,000 in the last, and nearly all of this since 1843. At the present time there is no tendency to increase. The great support of this trade is found in the transport of immigrants, and any diminution therein must be followed by a diminution in the tonnage.

In 1842, the STEAMBOAT TONNAGE on the western rivers was but 126,278, and the tendency was downward, as the business was very small, as may be seen from the number of trips made by certain boats:—

	Boats.	Trips.		Boats.	Trips.
1839, ...	35 . .	141	1841, ...	32 . .	162
1840, ...	28 . .	147	1842, ...	29 . .	88

In 1846, only four years afterwards, it had almost doubled, the amount being 249,055. In the two succeeding years it increased rapidly, as may be seen by the following statement of boats built at Cincinnati:—

1845–6, 5657 tons. | 1846–7, 8268 tons. | 1847–8, 10,232 tons.

In the last year the tendency has been downward; the boats built being only 7281 tons; and the number of arrivals being only 3239, against 4007 in the previous year.

We thus meet everywhere the same results. From 1836 to 1843, scarcely any increase; but from that date every thing starts into life and grows with rapidity. Arrived at 1848 and 1849, all tends downwards, notwithstanding the great increase of population.

TRADE OF NEW ORLEANS.

The value of the principal products of the interior received at New Orleans, from 1841–2, to the present time, has been as follows:—

	Total.		Total.
1841–2,	$45,716,045	1845–6,	$77,193,464
1842–3,	53,782,084	1846–7,	90,033,000
1843–4,	60,094,716	1847–8,	70,779,000
1844–5,	57,166,122	1848–9,	81,889,000

The value doubled in six years, but it is now falling, notwithstanding the large increase of western population in the last two years.

NEW YORK

Being the place supposed to be most benefited by perfect freedom of trade, we may profit by an examination into the effect of the various systems, as exhibited in the number of houses built in that city, as compared with the population of the country, of which it is the commercial capital. The earliest account I have been able to obtain is that of 1834:—

	Houses built.	Per million of population.		Houses built.	Per million of population.
1834,	877	60	1845,	1980	101
1835–41, average,	943*	58	1846,	1910	95
1842,	912	50	1847,	1823	90
1843,	1273	69	1848,	1191	60
1844,	1210	64			

The rapid extension of Brooklyn has been since 1842. Had it been possible to obtain a similar account of that city, which is but a suburb of New York, the difference would have been much more striking. We have here, however, all that is needed to show that houses in New York grew with the growth of factories and furnaces, and diminished, as they now diminish, with the cessation of their operations.

PHILADELPHIA.

It is deemed desirable to give the movement of PHILADELPHIA as the distributor of a large portion of the coal and iron of the Union, and as the centre of an important portion of the commerce between the East and the West; but it is impossible to obtain the number of houses built, because of no such record having been preserved, by several of the districts, until quite recently, and to give the movement of the population in the several periods, it is necessary to take the returns under the State censuses, which are septennial, and those made under the authority of the federal government, which are decennial. The former returns give only the number of taxables, but by multiplying them by five the population was always found to be nearly obtained, and I have done so throughout, although it is said that the proportion of non-taxables has within a few years so far increased as to make it necessary to multiply by five and a half. How far that is the case will be determined by the census of next year.

		Taxables.	Population.	Per cent. per annum.	Ratio to population of the Union, in thousands to millions.
1821.	State census	27,892	139,460		15·3
1828.	"	37,313	186,565	increase 4·9	15·2
1830.	U. S. "		188,958	" ·6	14·6
1835.	State "	49,847	249,235	" 6·6	16·7
1840.	U. S. "		258,000	" ·8	15·1
1842.	State "	51,063	255,315	decrease ·5	14·1
1849.	" "	77,285	386,425	increase 7·4	17·7

* Of these the number built in 1835 and 1836, before the Compromise began to have much effect, was greater than in any three of the other years.

It appears obvious that the productive power of the country diminished from 1835 to 1841, and still more rapidly in the two following years; and therefore it was that the power to pay for foreign commodities diminished so much that consumption could be maintained only by obtaining goods on credit, to be paid for at some future time, and bearing interest until paid. The following table will show the VALUE OF EXPORTS, being the amount of merchandise received from abroad in payment for merchandise and freights.

	Value of exports, per head.	Debt contracted.	Debt paid off.
1821, to 1829,	aver., $5		
1830,	4·32		
1831,	6·10		
1832,	5·51		
1833,	6·20		
1834,	7·08		
1835 to 1841,	aver., 6·02	$170,000,000	
1842–3,	4·48	Interest unpaid.	
1844,	5·03		Interest.
1845,	5·16		
1846,	5·75		$5,000,000
1847,	7		5,000,000
1848,	5·88	8,000,000	
1849,	5·19	22,000,000	

With each step in the diminution of the power to produce, there is diminished power of purchase, and hence the necessity for obtaining goods on credit. So it was from 1835 to 1841, and the result was almost universal bankruptcy. So is it at present, and the goal towards which we are moving would seem to be the same. The amount now required for the payment of interest is about $14,000,000 per annum, being $2,000,000 more than was required for the same purpose two years since.

In the following table are given two species of articles, of one of which (flax) a large part was freed from duty by the Compromise tariff, and so continued until September, 1841, while the other was subject to the same provisions as manufactures of other kinds. It will be seen how small is the difference of movement, proving that the amount of importation depends upon the *power* to import, and is but slightly affected by the question of duty.

	Manufactures of flax.	Per head.	China and earthenware.	Per head.
Sept. 30, 1821–29, average,	$3,333,000	29	$1,160,000	10
" " 1830,	3,011,000	23½	1,259,000	10
" " 1831,	3,790,000	28½	1,624,000	12½
" " 1832,	4,073,000	30	2,024,000	15
" " 1833,	3,132,000	22	1,818,000	13
" " 1834,	5,485,000	38	1,591,000	11
" " 1835–41,	$6,350,000—⅕=5,080,000	31	1,950,000—⅕=1,560,000	9½
" " 1842 to June 30, 1843,	average, 2,900,000	15½	1,300,000	7
" " 1844,	4,492,000	23½	1,632,000	8½
" " 1845,	4,923,000	25	2,166,000	11
" " 1846,	4,972,000	25	2,201,000	11½
" " 1847,	5,152,000	25	2,320,000	11
" " 1848,	$6,600,000—1/7=5,660,000	27	2,600,000—1/7=2,228,000	10
" " 1849,	not obtained			

* In 1829, the debt of the Federal Government was $58,000,000. In the year 1833–4, it was reduced to $4,000,000, and in the following year to $37,000. As much of this was held abroad, the amount paid off in this period was probably equal to that of States and corporations transmitted abroad at the same time.

We see here the importation of linens increasing under the tariff of 1828, diminishing from 1835 to 1841, and still further diminishing in the closing years of the Compromise tariff. Thenceforward it rises rapidly, notwithstanding the increasing tendency to substitute manufactures of cotton for those of flax.

In regard to China and earthenware, we see the same course of events. The importation rises under the tariff of 1828, diminishes under the Compromise, and still further diminishes in 1842–3, when it begins to rise under the tariff of 1842, but never attains the same height as in the previous period.

FRENCH MERCHANDISE.

		Per head.	
1822 to 1829, average,	9,130,000	81	Silks subject to duty.
1830,	8,240,000	64	"
1831,	14,737,000	1·11	"
1832,	12,754,000	92	"
1833,	13,962,000	1·00	Silks free.
1834,	17,557,000	1·21	"
1835 to 1841, average 25,200,000 — ⅕,	20,160,000	1·24	"
1842 to 1843, average,	14,500,000	80	Duties reimposed.
1844,	17,952,000	94	"
1845,	22,069,000	1·13	"
1846,	21,600,000	1·08	"
1847,	24,900,000	1·21	"
1848, 28,000,000 — ⅛,	24,000,000	1·14	"
1849, not obtained			

We have here the same results as elsewhere. The commodities we receive from France are almost altogether articles of luxury. In the period between 1829 and 1834, there is a gradual increase, until, in 1834, the consumption exceeds by fifty per cent. the average from 1821 to 1829. Thenceforward the amount remains almost precisely the same until we reach 1841. In the period ending June 30, 1843, it falls to the level of fifteen years before. In the following year, it begins to rise, and, by 1847, attains the level of 1834. In 1848 it falls to $1·14.

The remarkable part of this table is, the small increase produced by the abolition of duty upon silks, and the fact that the import rapidly increased after the duties had been reimposed.

TEA AND COFFEE.

The following table represents the quantities of tea and coffee retained for consumption rather than the actual consumption of the respective years, and the great irregularity of amount is more apparent than real. It is here shown, that the average consumption of tea in the years 1833 and 1834, the last two years in which the tariff of 1828 was in activity, was greater than that of the ensuing ten years, and that, notwithstanding the great increase of population, it did not rise above that quantity until 1845. Of coffee the consumption per head was little greater from 1835 to 1841 than the average of 1833–34.

	Tea.	Per head.	Coffee.	Per head.
1821 to 1829, average, pounds,	6,000,000	·53	pounds, 24,000,000	2·13
1830, ...	6,800,000	·53	38,300,000	3·00
1831, ...	4,600,000	·35	75,000,000	5·60
1832, ...	8,600,000	·63	36,000,000	2·60
1833, . . . (Duty free,)	12,900,000	·91	(Duty free,) 75,000,000	5·30
1834, ...	13,100,000	90	44,000,000	3·00
1835 to 1841, 12,600,000 — $\frac{1}{5}$,	10,080,000	·62	89,000,000 — $\frac{1}{5}$, 71,200,000	4·40
1842–1843, "	13,000,000	·71	107,000,000	5·60
1844, "	13,000,000	·68	149,000,000	7·85
1845, "	17,100,000	·88	94,000,000	4·82
1846, "	16,800,000	·84	124,000,000	6·20
1847, "	14,200,000	·70	152,000,000	7·25
1848, "	21,000,000	1·00	145,000,000	6·90
1849	not obtained		not obtained	

The great question to be settled is—"Which is the system under which the labourer is enabled to obtain the largest quantity of food, fuel, clothing, machinery of production and transportation—protection or free trade?" The former is denounced as a "war upon labour and capital," and yet it seems clear that the power to consume all those things for which men are willing to labour, and in the production of which other men are willing to invest capital, was greater under the two protective tariffs than at any other period, and that it is now gradually, but certainly, diminishing. Wages are falling, and the result is, a diminution of immigration, and an increasing tendency to emigration, both accompanied by a decrease of productive power, to be followed by a futher decline of wages, and a further increase of emigration. Shipping has grown with immigration, and freights have fallen, but, with diminution in the former, the latter must rise, and many of the commodities that we have recently exported will have to remain at home, and thus there will be a diminished power of importation, accompanied by a diminution of the public revenue, the improvement of which was one of the objects proposed in the adoption of the policy of 1846. How the different systems have thus far operated upon the receipts from import duties will be seen by an examination of the following table.

CUSTOMS REVENUE,

Derived from the import of Merchandise paid for with our Exports.

			Per head.
1821 to 1829, average, ...		18,500,000	1·69
1830 to 1834, ...		24,000,000	1·75
1835 to 1841, average, ...	$17,170,000		
Less one-fifth, for goods bought in exchange for certificates of debt, .	3,404,300		
		13,736,000	0·84½
1842 and 1843, ...		16,400,000	0·90
1843–4, ...		26,183,000	1·38
1844–5, ...		27,528,000	1·41
1845–6, ...	26,712,000		
Add duty on $5,000,000 of debts redeemed, ...	1,500,000		
		28,212,000	1·41
1846–7, ...	23,747,000		
Add duty on $5,000,000 of debts redeemed, ...	1,500,000		
		25,247,000	1·23
1847–8, ...	31,757,000		
Deduct duty on the amount of debt created, say $8,000,000, . .	2,400,000		
		29,357,000	1·40
1848–9, ...	28,346,000		
Debt created, $22,000,000—duty, .	6,600,000		
		21,746,000	1·00

It is here seen, that the importation of duty-paying articles increased so much under the tariff of 1828, that the revenue per head was greater than in the previous period, although the duty on railroad iron and on tea and coffee was abolished in 1832. The case would, however, appear much stronger were allowance made for the movements of specie. The period from 1821 to 1829 was one of great exhaustion, and the exports of specie exceeded the imports by an average of almost one million a year; whereas, the imports of the following period exceeded the exports by an average of five millions a year. The total difference is therefore six millions a year. Had this been imported, as in the previous period, in the form of duty-paying articles, and had the duties on tea and coffee been retained, the revenue would have exceeded two dollars per head.

With the next period, we find a great decrease in the revenue, indicating a diminished power to pay for foreign merchandise, resulting from diminished productiveness in the application of labour at home.

With 1842–3, there is a trifling increase, resulting from the action of the tariff of 1842, which was in operation during the last nine months of this short period.

From June, 1843, to June, 1846, the amount rises to an average of $1·40, and maintains itself during the first three years of the period. The passage of the act of August, 1846, connected with the warehousing system, tended to reduce the amount received into the treasury in the last year of this period.

With 1848, we find the average maintained, without, however, the increase that might naturally have been looked for in consequence of the great demand for breadstuffs, consequent upon the failure of the potato-crop in Ireland.

In the last year (1848–9), being the second in which the tariff of 1846 was in action, the amount of revenue derived from merchandise *paid for by our exports* has greatly declined.

In comparing the receipts under the tariff of 1842 with those of that of 1828, it is necessary to bear in mind, that, in the latter period, before merchandise could be purchased, there was a sum of ten millions of dollars to be provided for payment of interest on the debt incurred in the free trade one. At thirty per cent., that would have given three millions of dollars, or about fifteen cents per head.

The total amount of interest now to be paid is about fourteen millions of dollars, and this claim must be discharged by our exports before merchandise can be purchased: the consequence of which must be, a great deficiency in future revenue.

With these facts before us, we may now examine the different revenue systems that have been presented for consideration and adoption. By the English school it is held that, as cultivation first commences on the richest soils, agricultural labour is then largely paid, and the diversion of any portion of the population to mechanical pursuits is attended with loss. Observation, however, shows that the first cultivator commences, invariably, on the poorer soils, and that the rich lands of river bottoms, the underlying beds of marl, limestone, &c., are only brought into cultivation at a later period. The English school holds that mechanical labour must necessarily, because of the abundance of fertile land and consequent profitable application of labour, be dearer in a new than in an old country, and that competition can be maintained only by aid of laws restricting importation. It holds that double loss results from such restriction, labour being withdrawn from the profitable pursuit of agriculture to be given to the comparatively unprofitable one of converting agricultural products into the

various commodities required for the use of man: also, that these persons, thus unprofitably employed, are maintained out of taxes imposed upon the consumers of their commodities, and that every dollar paid to the government on the import of articles, in part manufactured at home, is accompanied by the payment of five, ten, fifteen, or twenty dollars paid to a selected class, thus living by taxation imposed on their neighbours for their support. This idea may be found fully carried out in a report of the late Secretary of the Treasury, for 1846. It is there shown, that all the coal consumed in the Union costs the consumer $1·60 *more* than it would do under a system of free trade, although the average price of all the coal sold at Pittsburgh, Wilkesbarre, Mauch Chunk and Pottsville did not, at that moment, exceed $1·50.

To relieve the consumer from this double taxation, the English school holds that all duties for revenue should be imposed upon articles that cannot be produced in the country, such as tea, coffee, &c., and that all those that can be produced in it, should be admitted free. Such is the theory that dictated the tariff of 1846, and the subsequent efforts to amend it by the imposition of a duty on tea and coffee.

The other school holds that articles which can be produced at home should be protected, while those which cannot should be admitted free of all duty, and such was the view which prompted the abolition of all duties on tea and coffee, by the act of 1832.

By the working of the two systems, their value is to be judged. In the first eighteen months of the tariff of 1832, tea and coffee were admitted free of duty, with a loss to the revenue of nearly three and a half millions of dollars per annum, to which was to be added a great loss of duty on silks, also free; but the protection of manufactures generally was maintained, and the consumption of foreign merchandise liable to duty continued so great, that the revenue increased more rapidly than the population. In the succeeding period, protection gradually diminished, with a certainty of its total disappearance as the Compromise bill should come fully into action, and the productiveness of labour became so far diminished, that the payment into the Treasury for duties on foreign merchandise fell to an average of less than one-half of what it had been from 1829 to 1834.

With the tariff of 1842, it rose gradually, and with a steady upward tendency; while, as that of 1846 comes into operation, there is a movement directly the reverse.

PUBLIC EXPENDITURE.

When men live in connection with each other, they are enabled to protect themselves, and have little need of fleets or armies for their protection. A few officers can then perform the duties incident to the maintenance of government. They then exercise, in a high degree, the power of self-government.

When they are widely separated from each other, they are unable to protect themselves, and have need of fleets and armies for their protection. Many officers are then required for the performance of the duties of government, and the power of self-government is diminished.

With the increase of fleets and armies, and of government officials, the cost of government is increased.

The policy of 1828, and that of 1842, tended, as we have seen, to concentration of population and combination of exertion, and, therefore, to increase in the power of self-government. That of 1833 tended, and that of 1846 tends, as has been seen, to dispersion of population and diminution in the power of combination, and, consequently, to diminution in the power of self-

government. What has been the effect of the two systems on the public expenditure I propose now to show. The true "war upon labour and capital," is that which increases the cost of government, and thus diminishes the power to accumulate capital, to be used in aid of labour. Every step towards diminution in the expenditure for that purpose tends to raise wages; and every one tending towards its increase, tends equally towards diminution in the power of both labourer and capitalist to command the necessaries, conveniences, or luxuries of life.

From 1821 to 1829, the total expenditure of the government, exclusive of payments on account of debts previously existing, was $117,000,000, being an average of $13,000,000

From October, 1829, to October, 1834, the period of the tariff of 1828, the total expenditure, exclusive of such payments, was 84,000,000, being an average of 16,800,000

From October, 1834, to October, 1841, the period of the Compromise, during which we colonized Texas and Oregon, the total expenditure was $223,000,000. In this period there were no payments on account of the old debt, the whole having been extinguished at the close of 1834. The average of this period of dispersion was 31,700,000

From October, 1841, to June 30, 1843, was a period of exhaustion, and the wants of the government were such as precluded expenditure. The average was 20,400,000

That of 1843–4 was 20,600,000

That of 1844–5, ... 21,400,000

With 1845–6, we recommence the system of dispersion. The occupation of Texas had brought with it war with Mexico, and the expenditure rose to 26,800,000

In 1846–7, dispersion increased, and large armies were sent to Mexico for the purpose of compelling the cession of California, the consequence of which was that the expenditure rose to 59,400,000

In 1847–8, it was 45,000,000

And a large amount remained unsettled.

In 1848–9, ... 46,798,000

As a necessary consequence of this system, the public debt, which was extinguished under the system of concentration, grew rapidly under that of dispersion, to be again diminished under that of concentration, and now again increased under that of dispersion.

PUBLIC DEBT.

1821,	$89,987,428		
1829,	58,421,414	Decrease in eight years,	$31,566,014
1834,	4,760,082	" five years,	53,661,332
1834–5,	37,733	Extinguished.	
1841,	6,737,398	Increase in five years,	6,737,398
June 30, 1843,	26,898,958	" two years,	20,161,560
" 1845,	17,093,794	Decrease in two years,	9,805,164
" 1848,	48,526,379	Increase in three years,	31,433,585
" 1849,	64,704,693	" one year,	16,178,314

CREDIT.

With every step in the diminution of debt, credit grows; with every one in the increase thereof, credit diminishes.

The policy of 1828 increased production and raised wages. The power to

pay for foreign commodities was great, and the revenue was large, the consequence of which was the extinction of the public debt, at the close of 1834. Credit was therefore high.

The policy of 1832–3 diminished production and lowered wages. Credit was high, and we obtained cloth and iron in exchange for certificates of debt; the consequence of which was, that, at the close of 1841, the foreign debt was two hundred millions, much of the interest of which we were unable to pay.

Under the Revenue tariff of 1841–2, public and private revenue almost disappeared, and bankruptcy and repudiation were the necessary consequence.

Under the tariff of 1842, production increased and wages rose. The power to pay for foreign commodities increased, public and private revenue grew, and we commenced to diminish our debt, the consequence of which was the perfect re-establishment of credit.

Under the tariff of 1846, production diminishes and wages have fallen. The power to pay for foreign commodities is diminishing, and we are again buying cloth and iron, and settling for them with certificates of debt, the amount of which transmitted to Europe in the two years ending June 30, 1849, is estimated at thirty millions of dollars; all of which we have, in that time eaten and drunk, and used, but have yet to pay for.

With a view to present at a glance the results obtained by this examination of the policy of the Union, I give the following diagrams, in which the movement under the various systems is distinctly shown.

No. I. gives the nine years from 1821 to 1829, when the tariff of 1828 came into operation.

No. II.—The years of the protective tariff of 1828, from 1829 to 1834.

No. III.—Those of the Compromise tariff, from 1834 to 1841. In this case, it will be observed that I have in all cases deducted from the consumption of imported commodities one-fifth, that being the quantity obtained in exchange for certificates of debt.

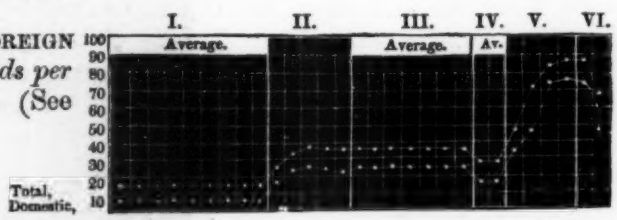
No. IV.—This represents the movement under the strictly revenue clauses of the Compromise tariff. In some cases, as will be seen, one year, and in others two years are included in this period. The returns for coal, railroad and canal tolls, &c., are made from the civil year, whereas those connected with commerce are made for the fiscal year ending June 30. The effect of taking one year, is to throw into No. III., the period of the Compromise, one-half portion of this period, and the other portion into No. V., the period of the tariff of 1842.

No. V.—The tariff of 1842.

No. VI.—That of 1846.

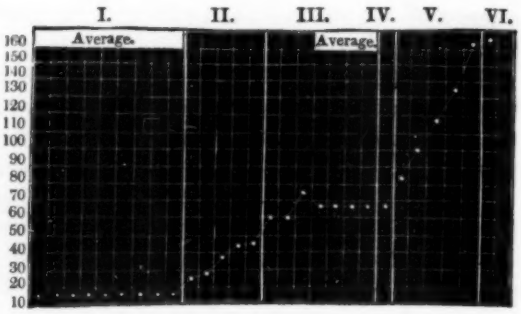
In the diagram representing the movements of iron, coal, cottons and woollens, the consumption is given in two sets of lines; one representing the domestic products consumed, and the other the total quantity. An examination of them will show, that the amount of consumption is dependent upon that of domestic production, and that any deficiency therein is *never* compensated by increase of importation, as it should be, if the theory is true upon which the tariff of 1846 is based.

CONSUMPTION OF IRON, FOREIGN AND DOMESTIC, *in pounds per head of the population.* (See page 390.)

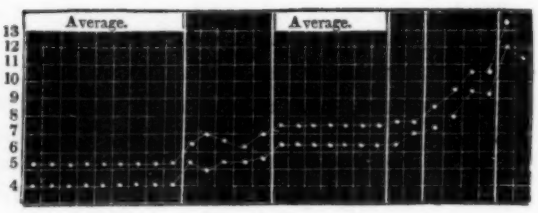


Railroad iron was exempted from duty in the third year of the second period, and from that time consumption ceased to increase.

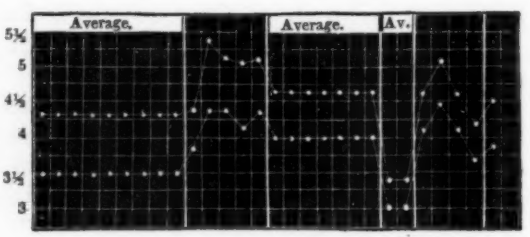
CONSUMPTION OF COAL, FOREIGN AND DOMESTIC, *in tons per thousand of population.* (See page 392.)



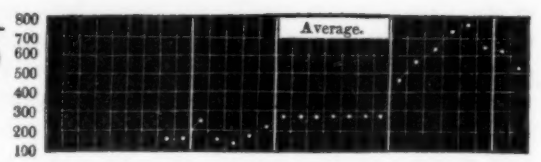
CONSUMPTION OF COTTON GOODS, FOREIGN AND DOM. *in pounds per head of the population.* (See page 394.)



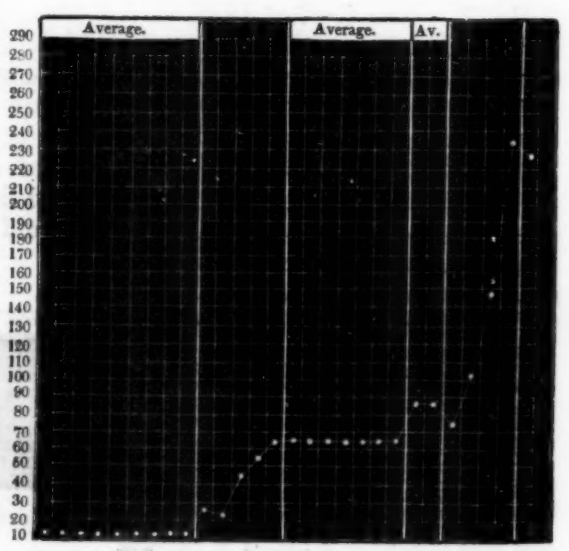
CONSUMPTION OF WOOLLENS, FOREIGN & DOM., *in lbs. per head of population.* (See p. 396.)

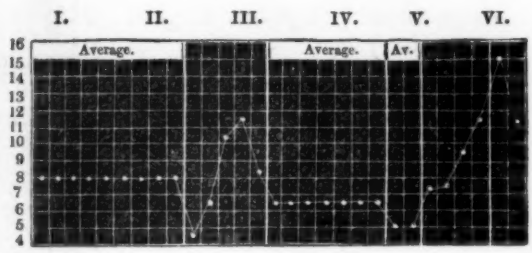


PRODUCTION OF LEAD, *in thousands of pigs.* (See page 397.)

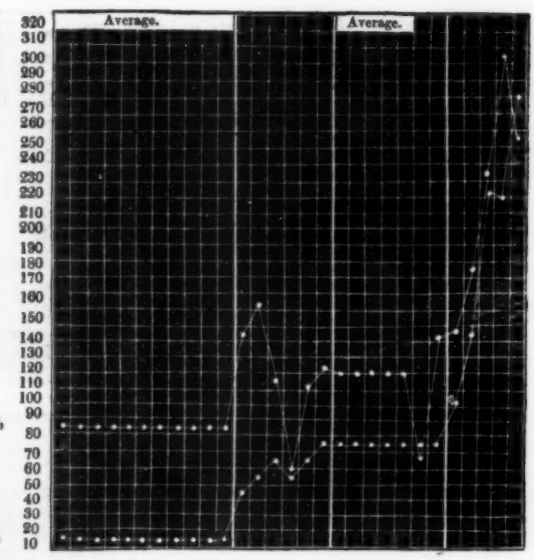


POPULATION, *as shown in the increase of immigration, in thousands.* (See page 397.)

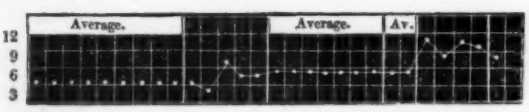




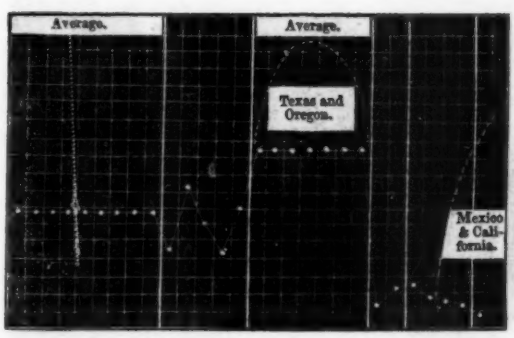
SHIPPING BUILT, *in tons, per thousand of population.* (See page 398.)



COMPARATIVE VIEW OF THE MOVEMENT OF IMMIGRATION AND SHIPPING, *in thousands.* (See page 398.)

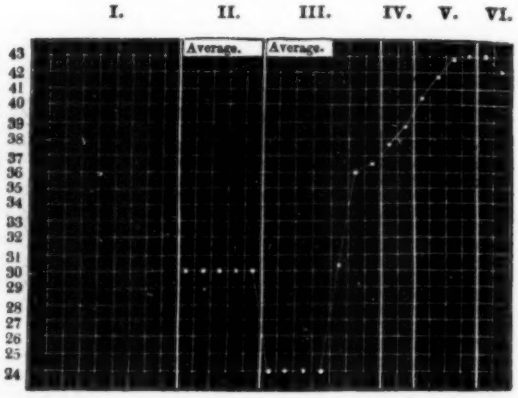


NUMBER OF STEAMERS BUILT, *per million of population.* (See page 398.)

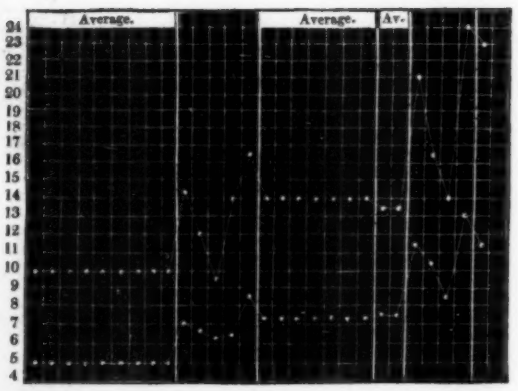


DEPOPULATION, *as shown in the occupation of* PUBLIC LANDS, *as compared with immigration.* (See page 399.)

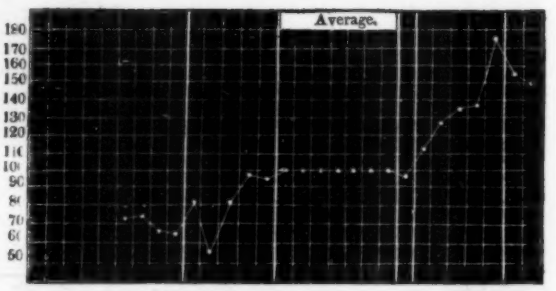
PRODUCTION OF GRAIN, *in bushels per head of population.* (See page 400.)



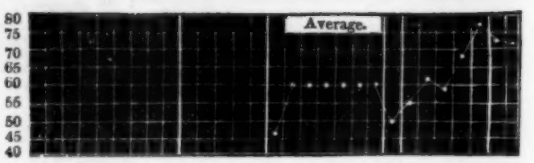
PRODUCTION AND CONSUMPTION OF SUGAR, FOREIGN AND DOMESTIC, *in pounds per head of population.* (See page 402).



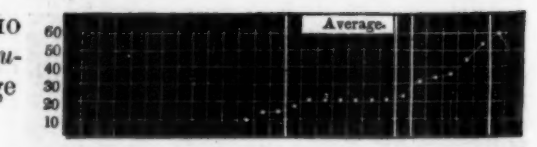
TOLLS ON THE NEW YORK CANALS*in dollars per thousand of population.* (See page 403.)



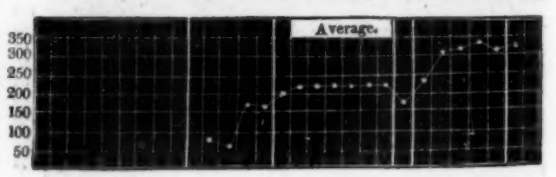
TOLLS ON PENNSYLVANIA PUBLIC WORKS, *in dollars per thousand of population.* (See page 403.)

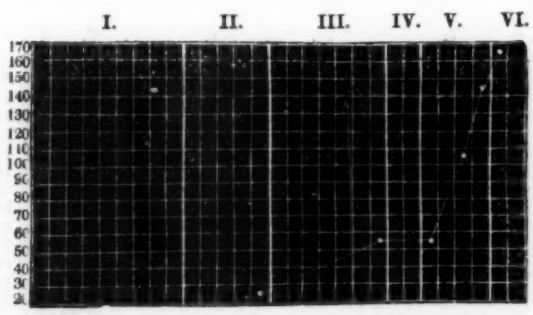


TOLLS ON BALTIMORE AND OHIO RAILROAD, *in dollars per thousand of population.* (See page 403.)

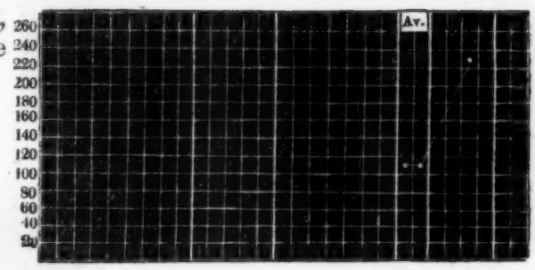


TRADE ON LOUISVILLE AND PORTLAND CANAL, *in thousands of tons* (See page 403.)

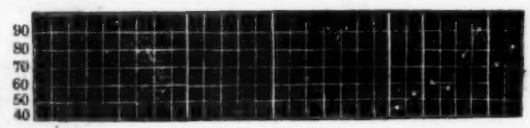




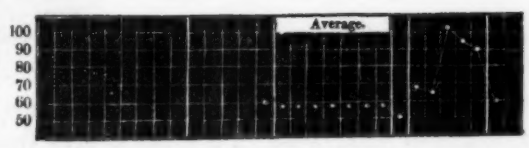
LAKE TONNAGE, *in thousands of tons.* (See page 403.)



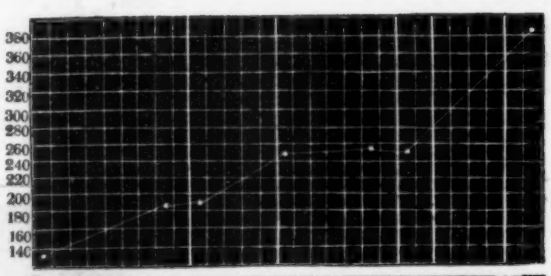
WESTERN STEAMBOAT TONNAGE, *in thousands of tons.* (See page 403.)



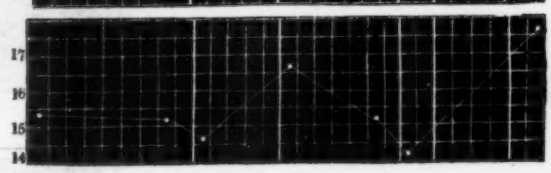
VALUE OF PRODUCE RECEIVED AT NEW ORLEANS, *in millions of dollars.* (See page 404.)



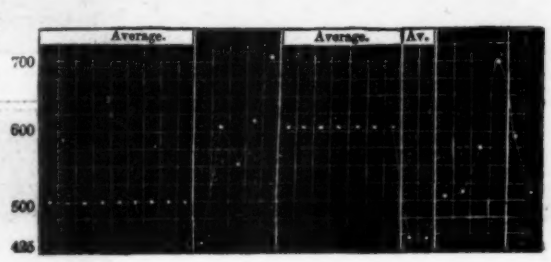
HOUSES BUILT IN NEW YORK, *per million of population.* (See page 404).



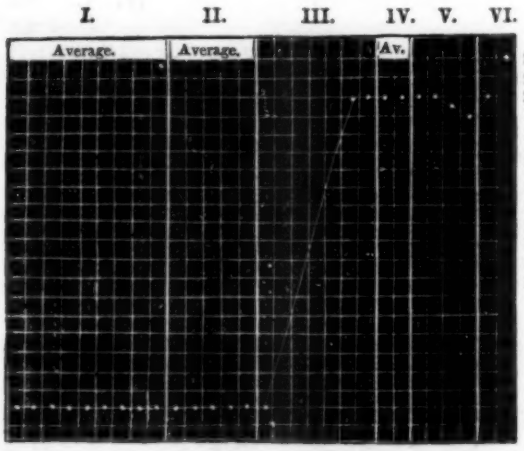
POPULATION OF PHILADELPHIA, *in thousands.*



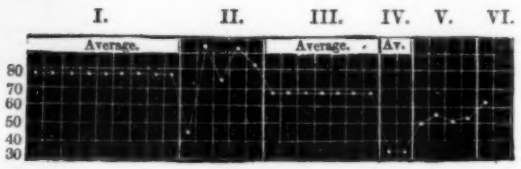
RATIO OF PHILADELPHIA TO THE POPULATION OF THE UNION, *in thousands to millions.* (See page 404.)



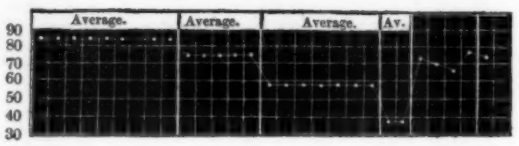
VALUE OF EXPORTS, *per head of population in dollars.* (See page 404.)



FOREIGN DEBT, *in millions of dollars.* (See page 404.)

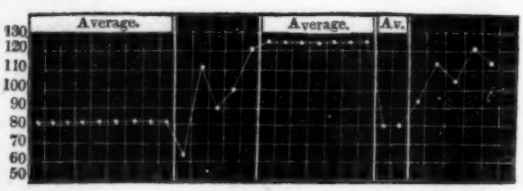


IMPORTS OF FOREIGN COTTON GOODS, *paid for by our exports, in cents per head of the population.* (See page 394.)

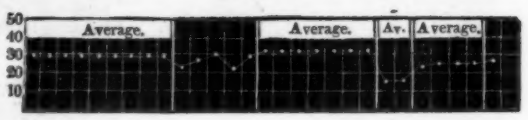


IMPORTS OF FOREIGN WOOLLENS, *paid for by our exports, in cents per head of the population.* (See page 395.)

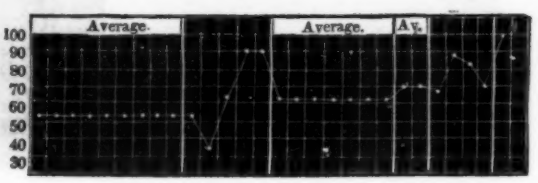
Of the four next following, the first two, French Merchandise and Manufactures of flax, were in a great degree freed from duty in 1832, silks and linens being declared absolutely free. The duty was reimposed in 1841. The others, Tea and Coffee, were free from duty in 1832, and so remain. The first two are given chiefly for the purpose of showing how small is the increase of consumption consequent upon a remission of duty, compared with that which, in every case, we have seen to follow the production of a commodity at home.



FRENCH MERCHANDISE, *paid for in cents per head of the population.* (See page 405.)

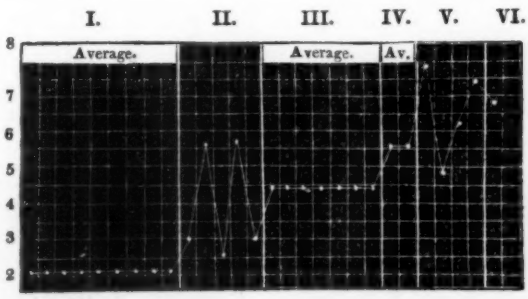


MANUFACTURES OF FLAX, *in cents per head of the population.* (See page 405.)

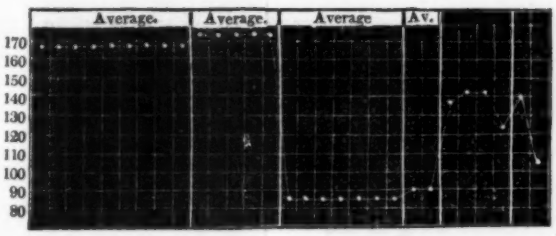


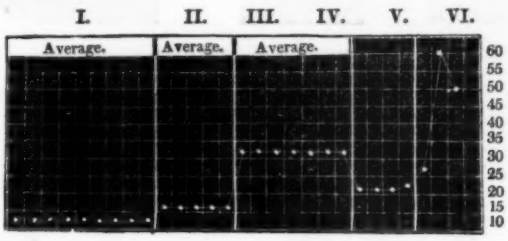
CONSUMPTION OF TEA, *in hundredths of pounds per head of the population.* (See page 406.)

CONSUMPTION OF COFFEE, *in pounds per head of the population.* (See page 406.)

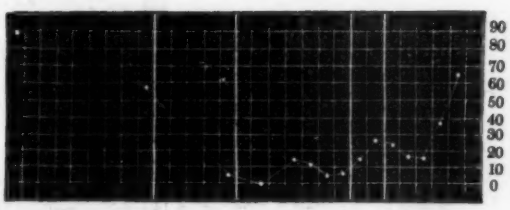


REVENUE FROM CUSTOMS, *in cents per head of the population.* (See page 407.)



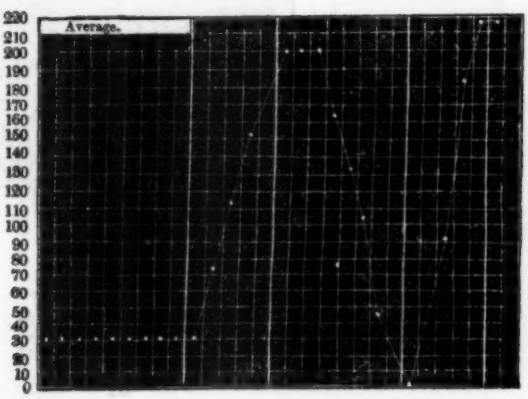


PUBLIC EXPENDITURE, *in millions of dollars.* (See page 409.)

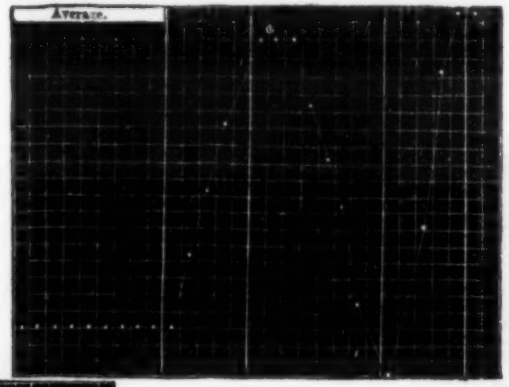


PUBLIC DEBT, *in millions of dollars.* (See page 410.)

NATIONAL CREDIT, *in millions of dollars.* (See page 410.)

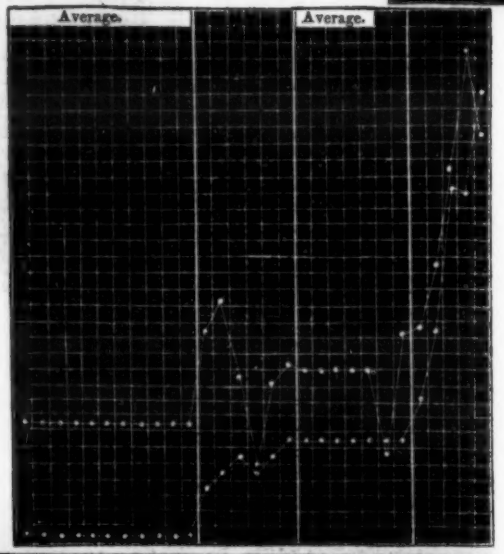


NATIONAL

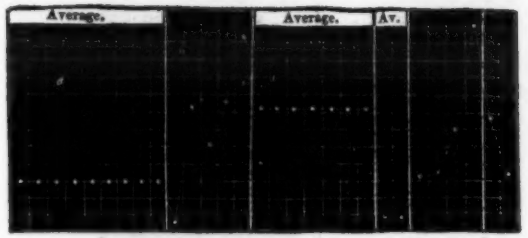


CREDIT.

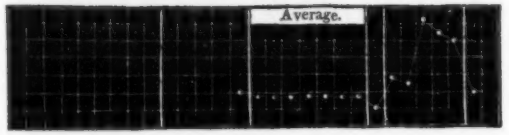
SHIPPING AND IMMIGRATION.



POWER TO MAINTAIN EXTERNAL COMMERCE.

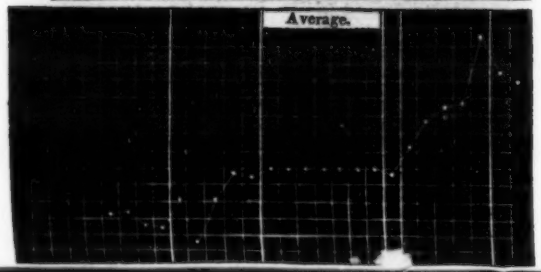


VALUE OF EXPORTS.

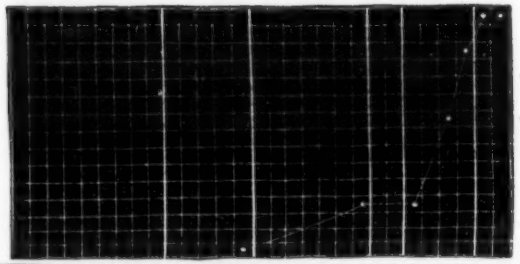


GROWTH OF NEW YORK.

TOLLS ON NEW YORK CANALS.

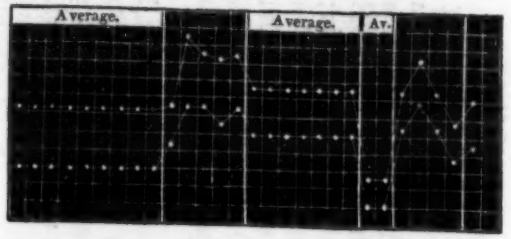


POWER TO MAINTAIN INTERNAL COMMERCE.

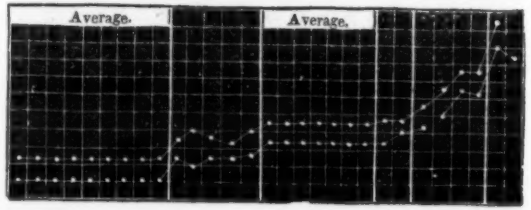


LAKE SHIPPING

Woollens.

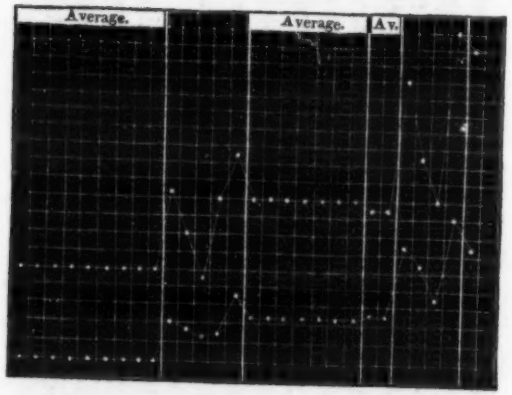


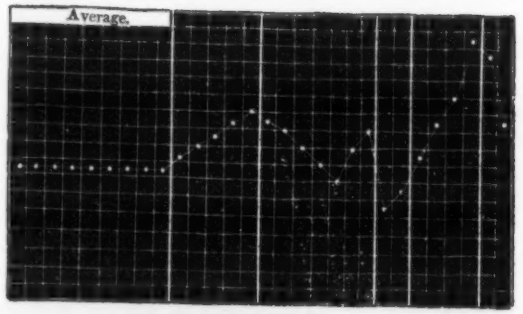
Power to obtain Food and Clothing in exchange for Labour.



Cottons.

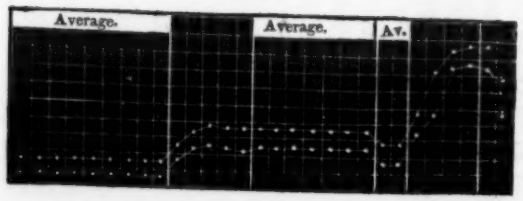
Sugar.



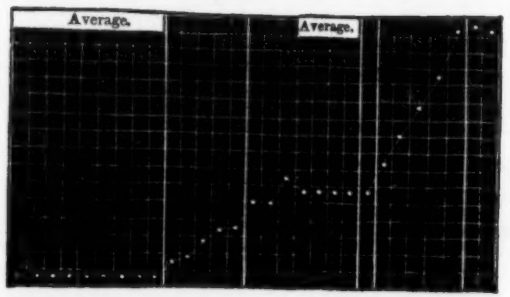


Grain.

Iron.



Power to obtain Machinery in aid of Labour.



Coal.

EXHIBIT OF THE QUANTITY AND VALUE OF WOOL

IMPORTED ANNUALLY, FROM 1821 TO 1849 INCLUSIVE.

Years ending		Wool Imported. lbs.	Value.
Sept. 30,	1821,	384,333	93,829
	1822,	1,733,420	387,312
	1823,	1,674,348	340,956
	1824,	16*	355,034
	1825,	25*	569,476
	1826,	20*	449,725
	1827,	19*	408,527
	1828,	4,081,006	612,151
	1829,	1,494,439	239,882
	1830,	669,883	96,853
	1831,	5,622,960	1,288,909
	1832,	4,042,838	698,721
	1833,	950,205	240,892
	1834,	2,341,313	667,925
	1835,	7,290,397	1,087,277
	1836,	12,687,621	1,270,126
	1837,	10,407,699	893,873
	1838,	6,968,363	532,971
	1839,	7,925,173	699,538
	1840,	9,898,740	846,076
	1841,	15,006,410	1,091,953
	1842,	11,420,952	797,382
June 30,	1843,	3,568,159	248,679
	1844,	14,008,408	851,460
	1845,	23,833,040	1,689,794
	1846,	16,558,247	1,134,226
	1847,	8,460,005	555,822
	1848,	11,381,429	857,034
	1849,	17,869,022	1,177,347

* 1824, '5, '6 and '7, quantities not returned by collectors.

ON THE USE OF OIL-CAKE AND LINSEED IN FATTENING CATTLE.

Will some one inform us whether the cheapness and the virtue of Indian corn in the United States is sufficient to account for the *non-user*, comparatively speaking, of oil-cake and linseed in our country, in feeding cattle and sheep?

Meanwhile we just add the following methods of using linseed and beans along with other farm-produce as food, which have proved profitable in our experience. In the first case, the object was to induce a large consumption of straw; and we believe that in the conversion of this into meat, rather than as litter into manure, there is the opportunity on most farms of adding considerably to farm returns. Two pounds of linseed meal and a handful of salt were boiled in an ordinary sized bucketful of water, and this was thrown hot over about forty pounds of chaff, as much as two oxen could eat in a day, and the mess was served up three times a day to the animals; in addition to which, they had about twenty pounds of turnips daily a-piece at mid-day: they did not fatten rapidly, but were kept in a thriving condition during winter, and increased materially in value on food most of which would otherwise have been converted into manure, with probably great waste of its substance in the dung-heap.

In the second method, twice this quantity of linseed was boiled and thrown over about half this quantity of chaff, and over that from eight to ten pounds of bean meal were dusted. This was served up to two fatting oxen (full-grown Herefords) in two meals, at 10 A.M. and 3 P.M. And, besides this, they had one cwt. a day of turnips each, given at morning and night. The result here was the growth of beef enough to pay all expenses of bought food and attendance, and nine shillings a ton towards the cost of the green food consumed. In both cases the result was profitable; for in both there was a successful attempt to suit the character of the food to that of the animals to be fed—the former were cross-bred young cattle, by no means kindly feeders—the latter, well-bred three-year-old Hereford oxen.—*English Paper.*

COTTON MILLS BY COTTON GROWERS.

EXPORT DUTY ON RAW COTTON.—PRICE OF COTTON.

BY MARK R. COCKRILL.

THE following article, which comes to us from a planter of Tennessee, contains matters of infinite importance not only to the cotton growers, but to the whole people of the Union, for the interest of all are one and the same. All would profit equally by the national adoption of a system that should proclaim to the world our determination that the time had ceased for the cotton to go to the loom, and that the loom must now come to the cotton. The basis of that system should not, however, be a prohibition of export. Other measures, working more gradually, would produce the effect more certainly and advantageously, as we shall have occasion to show. Whatever they may be, it is essential that they look to the growth of consumers of cotton cloth, as well as that of producers of cloth, and the latter are to be found among prosperous farmers, labourers, coal and iron miners, mechanics, &c. The interests of all are in perfect harmony with each other.

COTTON is the leading and controlling staple of the South, embracing nine States of the thirty, of the United States, and, therefore, worthy of consideration and study, by all who feel an interest in the prosperity of this end of the Union.

For seven years past, the labour of cotton growers has been sacrificed, and the prospect of a fair remuneration for the growing crop will pass away before another comes into market; leaving the future as a counterpart of the past, with a tendency to get worse, unless a remedy be applied.

The only safe and substantial remedy is to put up the *cotton mills* among the cotton fields. The great bulk of the crops, when put into market, is classed as "inferior, ordinary," and a small portion "middling;" and these classes have not averaged to the planters more than six cents for seven or eight years past, and some crops have been sold, during this period, as low as 4 c. per pound.

A continuation of these prices will soon create a necessity for a remedy for these low rates, which are not a compensation for the immense labour required in the cultivation of cotton. Under the present plan, the planter's labour, composed of the "sweat of his brow" and the substance of his soil, baled up as *raw cotton*, is shipped off annually 4000 miles to cotton mills in foreign countries, but chiefly to England, at an expense of eight or nine dollars per bale, which is charged to the grower, when the account of sales is furnished from the mill.

If this tax to get to mill was the only evil, it might be yet endured for a while; but there is, in reality, but one great cotton mill, and that belongs to England; and her agent sits at Liverpool, and sees our labour, in bales of *raw cotton*, piled up around him, till it will cover a ten-acre field. The reports of that market will show a stock, sometimes of a million of bales, then stored in Liverpool unsold; with a knowledge of the fact that it cannot be taken anywhere else. The grower has no remedy. *There* are the *spindles*, and *there* it must stay, and the agent of this tremendous English mill says, "I will pay you 3½d. per pound for your cotton," and it is sold. An account of sales is sent to the planter, in £. s. d., in red ink, with double entries; and when translated into English, he finds that his part is 4 c. per pound.

Cultivators of this great staple know that such prices are no compensation for the immense labour required in its growth. They know it is a *sacrifice*, which looks to ruinous consequences, because the substance of their lands is annually wasting away by continued cultivation.

The remedy which is now insisted on, is, for the *planters themselves* to "resolve" that the cotton mills shall be brought to the *cotton fields*:—that they have been paying toll to the English mills long enough. Make the *resolve*, and the ways and means will be readily pointed out, for effecting the end proposed. The cotton fields of the United States, extending from the Atlantic to the Rio Grande, embrace in their wide extent 500,000 square miles. The interest of *all planters* in this great cotton field is the same. State lines are imaginary, when the sacrifice of cotton-growing labour is the question; and old issues in politics may rest in forgetfulness, and the whole South may act as one State, in giving a prosperous direction and division to the labour of the best trained, most efficient, and regular force of workers on the face of the globe. This splendid force of labourers, if directed by skill and wisdom, will yet make brilliant the prospects of the Southern end of our Union. But a part of this force must be taken from the soil and put into the mills.

The spindles and looms must be brought to the cotton fields. This is the true location of this powerful assistant of the grower. In the *West*, in the East, or in the North, would be better than any foreign country; but the *best* location is the sunny South, where the cotton grows. The next best location is in the provision regions nearest the South.

To fix the public mind on the importance of this change, its necessity indeed, and to compel planters to investigate it, it is proposed that they as a body petition Congress to propose an amendment to the 9th article of the Constitution of the United States, which prohibits a "duty on exports from any State;" and when amended, that they pass a law, that $5 per bale be paid into the treasury of the United States, upon all *raw cotton* shipped after the year 1860.

This would be evidence of a determination among them, and ten years' notice to the world that they would no longer go 4000 miles to mill with their cotton.

An average crop now of United States is about 2,300,000 bales, which at 6 cents is $55,000,000. The estimated cost of spinning and weaving a pound of cotton is 3 cents, making two yards to the pound, equal to 18 cents per pound, at 9 cents per yard, for osnaburgs. The crop, then, when spun and wove, is worth 18 cents per pound, making $180,000,000, (allowing 10 per cent. for waste,) instead of $55,000,000, the yield *now*, when sold as *raw cotton*.

The inequality between the labour and capital for growing, and that for spinning, is startling. A pound of cotton, ploughed, hoed, picked, ginned, baled, spun, and wove, is worth 18 cents. The spinning and weaving, it is said, can be afforded for three cents cost, which would leave 15 cents per pound for the labour of the planter, supposing the cotton mill in the cotton field, and the mill to get cost only. But as three cents may be too low an estimate, make it 6, and then 12 cents is left for the planter. But now what does he get? 4, 5, and 6. The question may now be asked, Who gets the balance? Allowing 6 cents to the grower, and 6 cents to the spinner, there will be 6 cents yet unaccounted for. It goes to pay warehouse charges, freight, insurance, drayages, storages, weighages, *pickages*, pressage, commissions, postage, bills of lading, exchange, freight to Liverpool, dock dues, freight on railroad to Manchester, and then it is at the mill, and the same process brings it back; and this will fully account for the 6 cents per pound. Who pays these charges? The grower.

The growth and production of cotton are accomplished by the muscles of men and mules, labouring incessantly eleven months in every twelve; exposed to heat, to cold, to winds and rain, and to the malaria of swamps.

The spinning and weaving are done by the iron muscles of the spindle and

loom, driven by the never-tiring engine, waited upon by boys and girls; and this labour is under roof, certain as to *quantity*, free from overflow, from frost, from caterpillar and boll worm. This simple statement is evidence clear and strong, that it is the grower's labour which is now sacrificed, and greatly sacrificed. A firm and determined resolution among the planters—for they are the men who are suffering, and they must act for themselves—can arrest this policy in a few years. An export duty on "raw cotton" would ensure it, but it may be accomplished without it.

Having determined that the mills must come to the *cotton*, which is but one move, while sending the cotton to the mills is a heavy annual, perpetual tax, it is proper to inquire if cotton growers can get up the spindles and looms among the fields.

The following facts answer the question in the affirmative, most distinctly. We estimate the crop at 2,300,000 bales. The factories now in the United States require of this 600,000 bales—leaving 1,700,000 for the South to spin. This would require 350 mills, with 10,000 spindles each, or 700 mills with 5,000 spindles, or 3,100,000 spindles.

COST OF SPINDLES.

3,500,000 spindles, with all machinery necessary, looms, &c., at $12 each, - - - - -	$42,000,000
700 engines and fixtures, at $8000, - -	5,600,000
Other expenses in and about the machinery, -	5,000,000
	$52,600,000

The machinery, if all purchased in one year, would cost about $50,000,000. This is the only debt of importance necessary to be made, and its payment can be extended into ten instalments of $5,000,000 each, interest added. The difference in the income of the cotton growers, when they become spinners, is so great that this debt would never be felt. The 1,700,000 bales intended for the cotton field spindles, now yields an income of $40,000,000, at 6 cents. The same cotton spun up, by the creation of the above debt for these iron muscles, will give the same growers an income of $120,000,000, less the cost of spinning and weaving, which would give an increase of net gain per annum, nearly equal to the cost of the machinery.

One mode here suggested is, for planters, provision growers, and mechanics of all the cotton States, to send in petitions for Manufacturing Companies to be chartered, upon application to the legislatures of their respective States; and also to pass an act for a general charter for all persons who may associate together for manufacturing purposes, so as to avoid partnerships, and limit the liability of stockholders to the loss of their subscriptions as stock.

Spinning may be commenced, with any number of spindles, with or without looms. There is an extensive demand for cotton yarns, and thread is a saleable manufacture. The mills at Lowell average about 6000 spindles for each building. There is one, however, at Salem, containing 30,000 spindles, the largest in the world under one roof. The size of buildings, then, will depend upon the quantity of machinery intended to be worked. A mill for 2500, or 3000 spindles, for coarse goods, will require, perhaps, three rooms, 25 by 60 feet long, and a plan, suitable for the *cotton field system*, (which will be in the country, and where land costs nothing, and manageable by slave labour, at comparatively *no cost*,) is for fifteen planters to take $4000 each in stock, select a site for the mill near their plantations, detail three men from each, making a building force of forty-five men, besides an overseer and a general manager, one of the stockholders; with

this force, and as many teams as may be necessary, they will proceed to put up three rooms of 25 by 60 feet, of wood, one story high, of coarse, strong, undressed lumber, such as they can readily prepare from the forest, without an outlay of capital. Add at convenient distances 15 or 20 cabins, and the buildings for the mill are up. This wooden, one-story plan for the cotton field possesses the advantages of costing nothing, of fixing and running the whole machinery upon the ground, making it more steady and accessible, and avoiding wear and tear, with better ventilation, less noise, and, perhaps, less risk from fire, because it is not the walls of a mill, but the cotton about the machinery which is subject to burn.

One-story rooms, running in different directions from the engine, of wood, and without much labour in its preparation, are offered as a substitute for the four story brick and granite palaces of England and of New England, which are required to be built with thick walls, to avoid motion in the machinery, and therefore expensive, costing from $30,000 to $50,000; and when buildings for the operatives are finished, the bills are often $100,000 in a site and buildings, before a wheel is turned. While the manager and overseer are putting up the wooden mill and cabins, the planters, acting under the charter, have issued their bonds for $40,000, bearing 7 or 8 per cent. interest, payable in three, four, and five years, in equal instalments, and secured the payment by mortgage on the site and machinery, and a half section of land each, have sold the bonds and bought the spindles and engine, and are ready for operation in six months from the formation of the company. A man and four boys or girls are taken from the plantation of each stockholder and put in the mill, each getting credit according to the number furnished. These, with eight or ten trained hands as instructors, furnish a mill force which will spin and weave 1500 bales of cotton; making a million of yards of osnaburgs, worth 9 cents per yard, equal to $90,000 gross sales. The stockholders, being planters and near the mill, furnish provisions, cotton, and wood for the engine.

Suppose the planters who have put up this mill make 1500 bales only of cotton, which at $24 are $36,000. Since the erection of the mill the same cotton is worth $90,000 per annum. At the end of three years they commence paying the debt for machinery by instalments, and before this, the hands are trained to their new employment, and the planting account is raised from 6 to 10 cents a pound for the *field labour*, which had been heretofore shipped off, and lost. The mortgage debt is $2666 each, being fifteen planters associated to be paid in three instalments of $888, with interest, and that, when they are getting for their field labour 10 cents per pound. What, then, would be a debt of $1000 a year, on substantial planters, when they have ensured 10 cents a pound for their crops by incurring the debt?

There are nine cotton States, including Tennessee, which will average about sixty counties to the State. Two mills in every county, of 3000 spindles each, are sufficient to spin the whole crop, and render the South magnificently rich, and gloriously independent. I mention these facts to show the immediate capability of the cotton growers to relieve themselves from this blighting system of shipping off the soil in *raw cotton*, and bringing home nothing in return, comparatively speaking. There are twenty counties in Tennessee, South Carolina, Georgia, Alabama, Mississippi, and Louisiana, and a less number in Florida, Arkansas, and Texas, which can spare the force to erect the buildings and cabins, for ten such mills, in any one year, and make the usual cotton crop besides.

Steam is a regular, portable power, free from freshets, droughts, and mill-ponds, and can be commanded at will for three hundred days in the year, in any desired quantity, suited to small or large operations. Two sections of

land affording twenty cords of wood per acre, which is a low estimate, will drive an engine for 3000 spindles for eighteen years. This also shows that there is a permanent source of power in the cotton States, even when nature has not furnished either suitable streams, or deposited in the earth beds of coal; in some sections, however, both are found. The difference between the cost of water and steam is but one item, and that not large; but the only difference now is that of wood and coal; steam power is now considered as cheap as water, all advantages estimated. Among the fields a site may be often selected, near enough to enable stockholders to haul the seed cotton directly to the mill, the most desirable condition for the mill work. Thus saving the labour of ginning and baling, the loss on bagging and rope, commissions for buying cotton, and freight, besides saving the work of the picker at the mill.

Cotton growers who own slaves have long known that they are capable of making efficient operatives; and when once learned, they are fixed, permanent, and valuable. This branch of the business furnishes profitable employment on cotton to a portion of the field force, which relieves the soil to that extent, which is now wasting away, from over fatigue. It gives scope to all the mechanical talent among the slaves, both males and females. Men in the machine shops, and women among the mules, throstles, and looms. The condition of the States now is dependent; that is not the true position of the chivalrous South. A war with Great Britain would prostrate them at one blow. The revolution in France was like an electric shock, though she had but a few cotton mills. The starvation of Ireland, that bright isle of the ocean, puts *down cotton*. The Bank of England even can and does press down the price of "*raw cotton*" at Liverpool; and its recoil falls back on the grower. This dependency is unmanly, and does not belong to the American character. The angry ebullition of emancipation sympathy for the happy slaves of the sunny South, among our own Northern and Eastern friends, is sometimes a source of a moment's uneasiness, in consequence of our dependent condition and the repeated sacrifice of our field labour. These dependencies should be forthwith severed, by a determination to put up the cotton mills among the cotton fields, and spin and weave by slave labour.

This is the certain, safe, and sure remedy for all the *evils* enumerated above; bringing bright prosperity, humanity, with enlarged sympathies, and an ameliorated condition of the great working force of the South, in its train. Their labour, thus skilfully directed, would increase rapidly the net income of the growers, and slaves take the condition of their owners. Give them large incomes, and you make the negroes rich. As a general rule, (some exceptions, I regret to say,) rich owners have rich slaves.

The true character of the black man in servitude is not understood, except in the South. Negro society, with its amusements and sources of enjoyment, is not organized anywhere else to the same extent. They are born in servitude, and so were their fathers and grandfathers, and a long line of ancestry, and they have never known any other condition, and but few ever desire to change it. The body is accustomed to daily labour, inured to it from early youth, and it is a habit of his life. The mind is not called into action; they are relieved from all the responsibilities, sufferings, and mental anxiety of freemen, amenable to the laws of the land and the rules of society.

Out of the general fund, they are fed, clothed, and housed; and medical aid and attention and care are furnished when sick. Among them there are no widows or orphans thrown upon the charity of others; no paupers, and no lunatics; no painful anxiety for the future welfare of their wives and children, for a home and a competency are left for them when the husband is dead and gone.

It is the duty of their owners to bring to the aid of this available and efficient corps of regular labourers in the field, the steam-engine, and the iron muscle of the spindle and loom: with these implements they can put the labour of the field into a consumable shape, which leaves the world open as a market.

No longer will they pile up the cotton bales around the English mill agent in Liverpool, and suffer it to be sacrificed because they have no remedy. There will be a demand for coarse, heavy, cheap cotton goods, as long as there are labourers in the world to wear them, and in this shape the great bulk of the cotton crops will be consumed. Europe can continue to make the fine goods in which the raw material is no part of the cost; one pound making twenty yards of fine muslins.

South America, Asia, Africa, and the East and West Indies grow about 470,000 bales of fine cotton, well suited for fine fabrics. This supply Europe could still convert into fine fabrics. New England to make prints, and all other three to five-yards goods, and the cotton fields in the sunny South, in a warm climate, can work up the bulk of the crop into coarse, heavy goods, which will average not exceeding two yards to the pound. This system put into operation would yield to the Southern States for cotton alone $150,000,000, and supply the spindles now up in the United States. What effect such an income, in imports or money, would produce upon the trade and commerce of our southern cities, is suggested for reflection only at present.

Large bodies move slowly; and to ensure this result I suggest an export duty of $5 per bale on "raw cotton." Corporate companies by growers, and all others. The cheapest buildings which will answer the purpose. Buy the machinery, and mortgage whatever may be necessary to raise the funds by sale of bonds, at par. Spin and weave by a part of the field-force. Do this, and the fortunes of cotton growers are fixed on a permanent foundation, promising accumulated wealth to the whole South.

The iron establishments in the United States, and the machine shops generally, may look to the South as an extensive customer in a few years. It is, no doubt, the true policy of the South now to order the machinery mentioned, worth $50,000,000. This must go to the iron establishments, and the profits might be taken in stock in some of the best mills, and thus lessen the outstanding liability for machinery.

The mild, warm winters in the South are favourable to cotton spinning in cheap buildings. The passage of the Export Duty Law would turn the eyes of all spinners and weavers in Europe upon the South, and the country would be benefited for a while, by employing them until the raw force is trained. These suggestions are made for the study and consideration of cotton growers, by A PLANTER.

Important Invention.—On last market-day, Mr. Yates, an extensive corn-factor, presented W. F. Wratislaw, of Rugby, with a can of milk capable of being kept in a good and fresh state for an indefinite length of time, by means of a chemical process which it undergoes on being taken from the cow. It was manufactured at Toxall, near Stafford, on the estate of Earl Talbot, and we are informed that the milk of 700 cows is daily acted upon by this novel invention, which must, in course of time, be a valuable acquisition in the victualling department of the navy, for which it is well adapted. The process has been patented; and not only may a rich sweet milk be constantly had, but also rich cream convertible into butter in a very short time.—*English paper.*

IRISH PEAT CHARCOAL AND THE SANITARY REFORM OF LARGE CITIES.

The following is the account of the second meeting, from the proceedings of which we took an extract for our December number. Even medical men will see how natural is the connection between agriculture and some things that might seem to fall more exclusively within their department.

Last Monday evening a second meeting on this most important subject was held at the Mechanics' Institute, Southampton-buildings, Chancery-lane. The present much exceeded the former attendance: above eight hundred persons were present. The members of the different scientific bodies mustered strongly; medical men in abundance, who seemed to take great interest in the proposition; poor-law guardians, evidently on the "*qui vive*" as to what could be best *made* of the paupers; engineers "*ad infinitum*;" and though last, *not least*, a considerable attendance of agriculturists and florists. But we have not done: here and there appeared in a quiet corner, or under the shade of a lamp, a "bonnet" *with a veil*, closely drawn over it, but which could not conceal the interest *within*, on a subject which, perhaps, after all, more immediately affects the *woman* than the *man*. *She* feels and suffers under the *evils of home*. *He* spends his day abroad, from place to place, and therefore escapes. In fact, this meeting was composed of those who appeared, one and all, to feel that a question of paramount interest was to be discussed, and therefore assembled to have it fairly done.

After 8 o'clock, the time named, some impatience was expressed by the assembly, when Mr. Jasper Rogers presented himself, and addressed the meeting as follows:—In praying attention to what I am now about to place before you, I do so with great diffidence. I feel that to an assembly composed of so many men of science, I can scarcely hope to bring forth aught that may be considered really new; but the fact that so many have done me the honour of being present to hear what I have most humbly to promulgate, gives me hope that, although there is "really nothing new under the sun," I shall have the gratification of offering for the use of my fellow-beings the application of old principles to new purposes; and I shall hope to show that the combination of two substances—both deemed to be the meanest of nature's productions—will give effects, to prove, if proof be wanted, that nothing which nature produces is mean, if used for its purpose. The excretory matter of England and the bogs of Ireland have each been deemed pestilent and worse than useless; but, in reality, both are essentials to the luxuriance of vegetation. What does the mere observance of nature teach us? This—that plants luxuriate abundantly in nature's wilds. Why? Autumn blasts the flower, then the fruit, and then the leaf, which fall and rest, mayhap, in near proximity to the root that gave them birth. The flower withers, the fruit and leaf decay, earth goes back to earth again, and new plants rise, to worship nature. Such is nature's most beautiful operation. What is man's? Man takes to himself all the products of the earth. He consumes all, it may be said, that the earth yields. The inferior animal eats and draws from the soil elements which are essential to be returned, in part at least, to give the food again; but man consumes the animal! The plant draws from the earth its nutriment, and man consumes the plant. He luxuriates in all that animal and vegetable life can produce; and then, ungrateful as he is, forgetful now and always of the source from whence he draws his sustenance—takes all, and gives back naught. (Hear, hear.) I

am wrong; I said man, but it is only the Englishman! The Chinaman, whom in our self-complacency we despise, does not forget his obligation to the earth. All goes back again, and vegetation flourishes luxuriantly. Our neighbours of the Continent repay their debt to nature, and therefore inundate our markets with their grain.* We alone, the mightiest of the earth, forget the earth, yet periodically call on Providence to succour us. We pray for food, while the means to secure it abundantly is left to rot and fester till it kills, not feeds us. (Hear.) Who can doubt that the horrors of cholera have been increased and nurtured by our sewers? Through them all that should be given to the earth is rendered to the waters, and our rivers are thus made cesspools. (Hear.) I fear to theorize on so fearful a subject; but may we not with advantage inquire, is cholera an atmospheric influence, bred and wafted to us from some vast space of decaying vegetable matter, yielding continuously an atmosphere of life—imperceptible to the eye—but which feeds and fattens among the haunts of men, upon the results of man's own slothfulness? Is it the offspring of humus?—an animalcule, perhaps, which wends its way over the filth of India, where millions of beings unceasingly give out to the atmosphere what never should be left exposed to it. Luxuriating on its horrid food, it reaches mighty England at last, to prove to her she is filthy midst her magnificence—weak and powerless midst her greatness. (Hear, hear.) But I need not theorize. It is generally admitted that cholera is propagated by the effluvium from decomposing matter in the sewers of cities; and the question is, how can that monster evil be checked? I believe it can, by simply following the laws of nature—rendering back continuously to the land the elements drawn from it, which are the food of plants, but destructive to mankind. But it will be asked, how can this be done in such a place as London, where millions are congregated together? How can the matter be removed without contaminating the atmosphere of the town, and how used without that contamination being extended to the country? My answer is, *it can be done by intermixing it with peat charcoal!* At the last meeting here I had the satisfaction of proving that the intermixture of peat charcoal and excretiæ perfectly deodorized the fœtid matter, and rendered it apparently dry and fit for transport by any conveyance. Now, although that has been accomplished to the full satisfaction, I believe, of all present, it is only right that the properties of peat charcoal should be fully understood. It is the groundwork of all the plans I shall have the honour of describing; it should, therefore be perfectly clear that the peat charcoal deodorizer is a fertilizer also, which many other deodorizers are not. I must, therefore, pray your kind indulgence in permitting me to dwell a little on the facts relating to this very singular production. Early in the year 1845 I first brought the question of the value of peat charcoal as a fertilizer of the soil under public consideration, in a report then published, which had been previously made by me to the Relief Commissioners of Ireland, on the subject of the bog lands of that country; and let me premise that what I speak of is *peat charcoal*, not *peat ash*, which has long been known and used, and is totally different from charcoal. My investigation of the question was induced by experiments which had been made at the Botanical Gardens at Munich, in 1844, by wood charcoal applied there to aloes, pelargoniums, &c. Seeing the effect produced by wood charcoal, it immediately occurred to me that if peat charcoal possessed a fertilizing power, a mine of wealth (to use an Irishism) lay upon the surface of the country. I tried my experiments, and one and all were successful. The fact, however, was then not only doubted, but

* As in Belgium, where they protect their own industry.—*Ed. P. L. & A.*

actually laughed at by many, and I had the honour of being refused the gold medal offered by a public body in Ireland, for an essay on the treatment of the potato disease, (although offered a silver one, which I declined,) because, as I have been informed, I had set forth that carbon given to the roots of plants would invigorate them. This was then deemed a fallacy, but I am happy to say, any one may now allege the same without being laughed at. At that period, a popular chemist had set it down "that all plants depended upon the atmosphere for the carbon they contained," but the leading chemical writer of the present day says very differently. Brande states, in 6th edition, published 1848, that "although the accumulation of decaying matter which chemists term *humus* performs an important part in vegetable nutrition, it is not by its direct absorption and assimilation, but by its influence as a source of carbonic acid, which is partly taken up by the juices of the root, and partly evolved into the atmosphere; so that plants, independent of their leaves, can thus receive carbonic acid." Thus Brande proves what I then promulgated, namely, that peat charcoal acted upon by the soil and atmosphere yields carbonic acid to the plant, *for peat charcoal performs the same part exactly as humus.* I then stated what I do now, that the fertilizing power of peat charcoal can scarcely be over-estimated. It acts upon all that the soil produces: *I except nothing:* and, to use the words of Dr. Lindley in reply to a correspondent, (although the learned doctor was at first a doubter,) "*Use it for your onions, but it is good for every thing.*" (Hear, hear.) My own experiments have proved its value beyond a question; but I shall give you a few particulars of those made by two gentlemen of large landed property in Ireland, who, immediately after my first publication on the subject, entered into correspondence with me, and closely followed out my proposition—Henry Newton, Esq., Mount Leaster, county Carlow, and James Russell, Esq., Dunlivey House, county Donegal—and I beg to say that both were strangers to me until my publications came before them. Mr. Russell commenced his experiments in 1846. He tried it with all the usual farm produce except wheat, with uniform success, and as a top-dressing for grass land he had fully borne out all I had stated in that respect; but his trial on a field of four acres with potatoes in 1847 was very remarkable. They were planted in ridges, or, as termed here, "lazy beds;" one-half the field manured with farm-yard manure, the other with peat charcoal only, about a handful thrown on each seed. The result was more than a double crop from the charcoal; and he informed me that he was himself so astonished at the fact, that he requested Lord Donegal to see and vouch it. At my suggestion he planted oats the next year on the whole field without any further manure, and he assured me that the increase on that portion manured with charcoal was nearly in the same ratio as the potatoes. Now, what is the cause? Simply this. The charcoal lay on the land throughout the winter. Every shower of rain that came brought it ammonia and common salt in abundance. This continued for the winter months, and when spring came every grain was rich in nutriment, while it held moisture besides, to give it to the seed at once, and stimulate it into growth. Mr. Newton was most anxious to tell you these facts himself, but he arrived in London too late for our last meeting. He brought potatoes, of which I will tell you the history. In February last he planted a large field in drills, manured as usual, not then having charcoal; but in April he got some, and, before the potatoes being earthed, he top-dressed a few yards at the foot of all the drills as far as he had charcoal. He authorizes me to state that the result was not only very nearly a double crop, but that there was not a taint in one of them, while all the rest of the field was more or less diseased. (Hear, hear.) I regret extremely that he was unable to wait

for the present meeting; but he also authorizes me to say he has now a crop of Swede turnips that cannot be exceeded, to use his own expression. Yet they were not sown till June. No rain came for a month after; all the crops in his neighbourhood failed, and his were only manured with peat charcoal. In short, he has fully proved its value for all plants; like me, he excepts nothing. But I must tell you his reply to my inquiry as to his experience of its value for grass land. He said, "Nothing can exceed it; and there is little or no labour in using it. My friend Fenwick swears by it, and he declares he will write his name on the best grass in the country with *black* charcoal, and it will be the *greenest* part of the field in ten days." (Hear, hear, and laughter.) Having fully satisfied myself of the value of peat charcoal *as a manure* individually, my next question was, does it contain the property of correcting putrescence, which chemists have long known to exist in animal charcoal? I was aware from experiments I had made several years since in the purification of water in large quantities for manufacturing purposes, that many descriptions of wood charcoal—for instance, all hard woods—did not possess that property at all; but I was at length happy in the discovery of proofs that peat charcoal specially prepared was gifted with it to the highest degree; but it is right I should say all peat charcoal has not the same effect; and this I wish to be perfectly understood. The quality and preparation greatly affect the results. From the moment, however, of my first discovery, I was impressed with the idea that if it were possible to make the pestilential bogs of Ireland (as they have been called) yield a material to neutralize the really pestilential sewers of London, such an amalgamation would not only by the union produce wealth to both countries, but that that union would also produce, through self-interest alone, the real and lasting union which Providence must have intended, and which would be the greatest blessing that ever fell upon both. (Loud cheers.) In this happy anticipation I have incessantly laboured for nearly five years, midst derision at the commencement, doubts and difficulties of all kinds midway, jealousies and attempts to overthrow my hopes and my proposition at the end. But I stand now, for the second time, before an assembly openly convened to test the reality of what I have promulgated. And I believe in my heart, that if England takes from the bogs of Ireland the means to give purity to the towns of England, Ireland will be blessed with food and contentment, and England with increased wealth and happiness. (Cheers.) At our last meeting I proved to you that the amalgamation of peat charcoal and excretiæ produces an inoffensive mass, capable of being packed in bags, and transported by any conveyance. I would now pray attention to what that compound contains. I do not hesitate to say it is richer in fertilizing powers than any other manure that can be produced. The components of peat charcoal are carbon, hydrogen, nitrogen, oxygen, sand and clay, oxide of iron, phosphoric acid, silicate of potash, chloride of sodium, carbonate of lime, sulphate of lime, &c., possessing, as a whole, the power of absorbing, deodorizing, and retaining for the uses of vegetation, the components of human excretiæ, &c., phosphate of ammonia, phosphate of lime, phosphate of magnesia, phosphate of soda, phosphate of iron, chloride of sodium and alkaline sulphate, sulphate of lime, sulphate of soda, sulphate of potassa, hydrochlorate of ammonia, lactate of ammonia, free lactic acid, urea, uric acid, animal matter, mucus, earthy phosphates, &c. Is it possible to conceive any thing richer in the essentials for vegetation? In fact, it may be said there is nothing wanting. And recollect, that while it originally contains all you have heard, peat charcoal has, as before stated, the extraordinary power of drawing to it, so long as it rests in the land, all the ammonia, salts, &c., which every shower of rain brings down, still en-

riching itself more and more; and, according as it gives out its elements of nutrition to the plant, it becomes the vehicle to receive a new supply from the atmosphere. It is, in fact, at all times a reservoir of both manure and moisture combined. It will take up above 80 per cent. of water, and above 90 volumes of those volatile gases which are the food of plants. The intermixture may be well called artificial humus. But I believe we are all ignorant of what the real and manifold properties of peat charcoal are. Peat, in its natural state, is known to possess the extraordinary power of preventing the decomposition of animal substances. Human bodies have been found undecomposed which have been submerged for years. It contains spermaceti—whether naturally, or by deposit of animal matter, produced from itself by insect life, and given back to it in death, or otherwise, is unessential for the present. But, above all, it holds an abundance of humine or ulmine, which, it is well known, is essential to vegetation, and possesses extraordinary powers in attracting or fixing ammonia. None of these properties exist in wood, except a slight portion of humine in elm. In the original properties, perhaps, rest the singular virtues of peat charcoal; for I do not hesitate to state that its powers are for many purposes infinitely beyond all other charcoals, and only belong to itself. We have been in the habit of assuming that all charcoals contained identical components, but I believe this is an error; in fact, I have so proved, and the proof is within the reach of all. Charcoal of lignum vitæ, teak, and other hard woods, has no deodorizing power, neither has the charcoal of coals; and it has long been known that the charcoal of hard woods has no decolorizing property: hence why animal charcoal has been used for such purposes. Still, it has been assumed that charcoal, in a general sense, had not only these properties, but that it has been known to be a general deodorizer. I shall only say, that if any one knew that peat charcoal had the property of deodorizing nightsoil in the manner that I have brought forward and proved, he has, I conceive, a great deal to answer for, in not having brought it before the public. Peat charcoal, it cannot be doubted, possesses properties belonging to itself alone, and perhaps there are few subjects so well worthy of the deep research of chemistry. If I but succeed in enlisting the attention of the many men of science present, I shall be happy to be only the humble *finger-post* to the path. (Cheers.) But what does peat charcoal present besides, for public good? Its extraordinary capability of absorbing sulphuretted hydrogen and other gases inimical to animal existence, gives it the power of relieving us from the fearful evil that the inhabitants of cities now suffer. By its use, excretory matter may be constantly kept from the sewers, in place of being daily disseminated through miles of streets, giving out those gases which were formerly held sealed up in cesspools. The evil produced may be a thousandfold beyond that which cesspools formerly permitted, because for every square foot of surface exposed to atmospheric influence in a cesspool, the distribution thereof, by means of a stream in a sewer, say one inch in depth, will give the contents of 12 cubic feet to be acted upon; thus 1728 inches of surface will generate gases destructive of human life, in place of 144. Do not think I advocate cesspools; far from it, for they are a disgrace to civilization; but I hesitate not a moment to say, they breed disease in a manifold degree less than sewers. No city can be healthy so long as the present system of sewers continues. The proof is simple—in London itself 140 of its people die for every 100 that die in the surrounding counties. I shall now beg leave to point out the plans I suggest for the sanitary reform of London, which are similar to what I submitted to the sanitary commission two years since, and which are now before the metropolitan commissioners of sewers. I do not present them as fully matured, but as the

principle upon which I am satisfied the whole excretory matters of towns may be saved, and converted into a most profitable manure. Modifications will possibly suggest themselves hereafter, but the principle has been already proved.

Mr. Rogers then developed his plan for the sanitary reform of large cities, which he illustrated by reference to numerous diagrams. In the first place, he proposed the construction for every house of a tank about 2 feet 6 inches square, and capable of holding 18 or 19 cwt. of matter. By this arrangement, supposing it to be universally carried out in London, only 248 wagons and double that number of men and horses would be required periodically to remove the tanks and replace them again. In fact the same staff which now carried away the ashes from dwelling-houses might remove the contents of the tanks: and the adoption of this plan would give a return to every house £5 or £10 a year. It had been asked, however, if one tank might not be constructed for the reception of the excretory matter from a number of houses; and it might. Let a chamber be made under the street, 30 feet by 20, with two tanks 28 feet by 6 feet, and they would be amply sufficient for receiving all the matter from 500 houses in 24 hours, and also to contain enough peat charcoal at the bottom to allow of the filtration of the liquid, and the retention of the solid matter. Workmen employed 12 hours every day might get rid of all the matter deposited in 24 hours; and, in doing so, not the least odour could, under any circumstances, arise. In his estimate he had allowed from £10 to £15 a house for accomplishing this; but such tanks as the latter would cost, say £800; and the only additional charge would be the earthenware pipes, of comparatively little expense. In that way £5 per house would be more than ample. And if he was not wrong in what he had that night shown, every house would net £5 to £10 per annum—if what he proposed was honestly carried out. The disagreeable and noxious effluvia which were generated at cab-stands and other places in the streets of London might also be completely destroyed. And with regard to intramural interments, if the management of any churchyard in the metropolis were intrusted to him, he would undertake that in the course of one day after carrying into effect the plan he proposed, no odour whatever should arise from it. Upon the surface of the ground he would place some three or four inches of granulated prepared charcoal, which would arrest the gases and prevent them from passing through; and this he would cover with a small quantity of macadamized stones. (Hear, hear.) Any person had the power in his own hands of testing for himself that peat charcoal would absorb all gases that arose from decomposing matter; but there was another purpose for which it was also highly valuable, viz. the filtration of water. They had only to cause the water which they desired to purify to pass up—not down—through a layer of charcoal, and then through a sponge, and it would flow out as pure as spring water. (Cheers.)

Sir Charles Aldis, Dr. Grosse, and Mr. Cuthill (florist) of Camberwell, having been appointed judges, experiments were proceeded with to show the deodorizing properties of peat charcoal. The machine was put in motion by manual power, and in an incredibly short space of time a quantity of excretory matter, mixed with charcoal, had passed through it in the form of a dry black powder, the volatile gases which it originally possessed being entirely neutralized, and the substance itself rendered completely odourless.

Sir Charles Aldis then reported that the judges were of opinion that the experiments had been fairly and properly made, and that they were most successful. (Cheers.)

Mr. Cuthill said he had carefully examined the machine before the

experiments were made, for the purpose of ascertaining that they were conducted fairly; and he must say that he considered it a most marvellous discovery. (Hear, hear.)

Doctor GROSSE said he could not say too much for what he had witnessed; and that he did not doubt that, because England was first in all other things, she would soon be first in agriculture. (Cheers.)

Mr. BLANCH, (surgeon,) after expressing his approbation of the experiments, and his concurrence in the statements made by Mr. Rogers respecting the value of peat charcoal as a deodorizer, said that the only drawback he saw in that gentleman's plan was that the sewers would carry away the liquid excretia. Thus a considerable portion of the existing evil would remain, though it was possible to preserve the liquid as well as the solid manure.

The CHAIRMAN then read a resolution to be proposed by the judges.

Mr. SWINBURN stated that, before any resolution was put, he wished to point out that he had an antagonistic plan. He considered that the *two excrements* should be separated and kept asunder, for which Mr. Rogers's plan did not provide. (Laughter.) But, as he could not deny the deodorizing property of charcoal, he could not object to the resolution which it was proposed to put.

Sir CHARLES ADDIS said he had great pleasure in proposing the resolution he held in his hand, by desire of his fellow-judges. Mr. Rogers deserved the highest praise. The sentiments he had expressed did him honour, for they could not be doubted. He had conferred a great good on Society. What could be more simple than his plans? and at all events, if the authorities would not remove the cesspools, surely they ought to *smother them with charcoal.* He could not express too strongly his approbation. (Hear, hear.)

The resolution was as follows:—

"We, the undersigned, having been appointed by the meeting held here this evening to watch the experiments made by Mr. Jasper W. Rogers, explanatory of his views for carrying out his plan for the Sanitary Reform of London and other large cities, by the application of Peat Charcoal, do certify as follows:—

"That the experiments have been fairly and openly performed, and that the results have justified the predictions and sustained the facts advanced by Mr. Rogers in his Lecture.

(Signed by)

"Sir CHARLES ALDIS, Surgeon, Old Burlington-street, St. James's.
JAMES CUTHILL, Florist, Camberwell.
Dr. THEODORE GROSSE, Stoke Newington."

The CHAIRMAN then rose. It became his duty to read a resolution which had been placed in his hand, in order *to ascertain if it were the feeling of the meeting.* He then read the resolution, and, said—"All who are of opinion that this resolution shall pass, will express that opinion in the usual way." A forest of hands immediately appeared, while no dissenting hand was presented. The following resolution was unanimously passed, with enthusiastic cheers:—

"Resolved unanimously,—That the cordial thanks of this meeting be given to Mr. Jasper W. Rogers, for his instructive and important lecture on the plan as proposed by him, for the sanitary reform of London and other large cities, by the aid of peat charcoal; and that we deem his proposition worthy of the very serious attention of the inhabitants of this great city, as a lucrative method of freeing themselves from the serious evils under which they have been and still are suffering, in consequence of the present defective system of sewage. "WM. SHAW, Chairman."

Mr. ROGERS came forward, and was loudly cheered. He said he could not express the obligation he felt: all that he would say more on that point, was, that he would rest neither day nor night until he had carried out those

plans which he was satisfied would be of the utmost consequence to the country at large. They would save the poor of Ireland from starvation, and the poor of England from death. Ireland had 3,000,000 acres of bogs, and thousands of poor people ready to give their labour to produce peat charcoal, which might be sold at £2, 10*s.* a ton in England; yielding large profits to those who embarked capital in the manufacture. The peat was from 10 to 50 feet deep, and he could answer for it, that if London took even 2,000,000 tons a year, there would be enough for the next 6000 years. (Hear, hear, and laughter.) And what would it do for themselves? Get rid of the horrors they were suffering under, and at the same time give the farmer plentiful crops, at a comparatively trifling cost. (Hear, hear.) He wished the meeting saw what he witnessed yesterday. At the request of the Irish Amelioration Society he visited Windsor, in the hope of purifying the miserable square of buildings where some 17 or 18 persons had died, within a few days, of cholera. Before his arrival (accompanied by Mr. Shoredicke, one of the Directors,) government officers had taken the matter in hand; the Society was, therefore, unable to accomplish its desire. He never saw so fearful a place. A little square of 21 houses, situate at the lowest part of the town, had the sewers from all the houses on the hill above running directly under them, in addition to all their own filth, and at the back ran an open ditch filled with house matter. This ditch communicated with several others, some five or six thousand yards in length, at each side of a public road, and into it had been emptied for years all the filth of the town. Now, all these horrors lay within 500 yards, as the crow flies, of where the Royal standard of England was then floating, and where her Majesty then was. (Hear, hear.) Unscared she had come there—to her honour be it spoken—but was it not fearful to think that within the very precincts of royalty so dangerous and abominable a nuisance existed? (Cheers.)

Thanks were then voted to the chairman, who warmly expressed the pleasure he felt at having been instrumental in proving what he had himself doubted; but which, if proved, he felt would be a great benefit to agriculture.

The meeting then formally closed, and several left the theatre.

Mr. Rogers, in a few minutes after, came forward and expressed a wish that the meeting would remain until he showed them the intermixture of *equal parts of charcoal and excretia.* Those quantities were then weighed and passed through the mill, and immediately came out perfectly free from odour. In an instant a rush was made for the *precious "morceaux;"* every hand was in the tub, and the whole vanished at once. While passing out, we heard the man who worked the machine saying to Mr. Rogers, "*If you let me put another charge in, I'll get a shilling an ounce for it.*" In sober seriousness, not a grain was left.

Sex of Poultry.—A correspondent gives some interesting facts upon the success of cockfighters in breeding none but males, which I should like to see elucidated. Books are at variance, and agree only where they are copied from one another, seldom giving the result of the writer's own experience. "V. S." appeals to your correspondent "D. S. E." who pointed out in a former volume of your paper the mode adopted to choose those eggs containing male and those with female embryos. More recently, in the "Ornamental Poultry," the latest work published, with the exception of the "Farmers' Dictionary" just completed, and which I have not seen, the author states his decided opinion that there is no possibility of foretelling the sex, but which is certainly opposed to the instances afforded by "V. S." —*English Paper.*

THE PEAT OF MASSACHUSETTS.

ITS CHARACTER AND USES.

Mount Monotiquot, Braintree, Nov. 20th, 1849.

J. S. SKINNER, ESQ. *My dear Sir,*—It gave me pleasure to hear from you once more. I can easily conceive how your time must be occupied, and the labour—*hard* labour, performed by you to get ready for the press monthly, such a work as yours. Your inquiry about Peat Charcoal I have attended to; we have some ponds when dry, from which is taken a black mud, which I consider of little value. We have some swamps, (I have one of about six acres of probably twenty feet in depth,) made rich in decomposed vegetable matter, partly by leaves from an adjoining forest, partly from new sterile plough lands, and partly from its own accumulation, from the creation of the world to the time of aquatic plants, trees, &c., which have in their time grown, fallen, and decayed, and are now, except some top strata of roots, in a state of decomposition, the vestige of large trees, to be thrown up by the spade. This material, when thrown on the uplands and frozen dry, can be divided in its yearly deposits as with the leaves of a decayed book. This is sometimes cut into square pieces of about three inches by twelve long, and dried, housed, and used as a fuel, and is sometimes worked over like mortar, and then formed as described; but I have never known any charred, and my Irishmen, of which I have a delegation of ten, are ignorant of any practice other than ours; but you will find a short account in the Journal of the Royal Agricultural Society, vol. 5, p. 507, of Charring Peat, and rather a flattering account of its fertilizing properties. Dr. Lindley alludes to something of the kind, but I do not understand him; he calls it charring, I believe, but it is done by puting the peat in a liquid manure tank, and saturating it. Ruffin speaks of its acid qualities, which through an experience I can confirm. I throw this out, and team it a short distance to hard land, and allow it time to drain and freeze, and when my yards are cleaned in the spring, I cover them about sixteen inches deep with this muck, and during the year I turn it all over in compost, which, I believe, answers well. I have had one man composting these three weeks past, with muck, sawdust, and coal cinders from railroad engines, with two hundred dead dogs, which the city inflicted capital punishment on, dead cows, horses, hog manure, &c., together with an occasional saturation of human urine, which I team from the city, a load of six hundred gallons at a time. This will be in fine condition in May next, and as I want something to mix with the strong manures, I know of nothing so appropriate; but we have much to learn in this fertilizing matter. The acquisition and application of it, in a judicious manner, when known as it *will be*, will be worth more to our country than all our foreign commerce; but I find I am on a fertile theme and must close. Please not forget me on the soiling subject. Enclosed you will receive the subscription for two years. Please let me know how our account stands.*

Yours sincerely with respect, BENJ. V. FRENCH.

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* Paid in advance up to 1851. "Them's the sort" what *is* subscribers worth having. How much it would lighten an editor's labours and relieve his anxiety, if all would follow *this* "French fashion!" Some subscribers think it unreasonable to ask payment in advance, even for one year; but which is most unreasonable, for one man to wait a year for $6 or $8000, being himself compelled to *meet all expenses monthly;* or for one person to *risk* his $3 *in advance?* Three days do not pass, after the expiration of every month, before the bills come in to us and *are paid*, for stereotyping, paper, printing, binding, clerk hire, &c.

Sixty subscribers, during the month of November, was the smallest number for the time, we have ever taken. Two of them took five copies each, commencing with the first

To the Editor of "The Plough, the Loom, and the Anvil:"

SIR:—In your December number you earnestly desire some of your northern friends to furnish information on the subject of peat as a manure. Your zeal in a good cause entitles you to all the encouragement I can give you, and you shall have the result of my experiments. I wish it was better worth the attention of your readers.

My farm is in Essex county, Mass., and in that region peat abounds. It is much used for fuel, being easily prepared and cheaper than wood or coal. For many years I have covered my barn-yard and pig-pens with peat, which, after it has been worked over by the pigs and has absorbed the droppings of my stock, has proved on all sandy, loamy, or gravelly soils, an excellent manure for Indian corn.

Within the last six years I have carted the peat much into the fields which I have intended to cultivate, and have there made compost-heaps in the fall, which are ready for use in the following spring. My most common method has been to place in the field first a laying of peat fresh from the ditch, then a laying of horse-manure, and again a laying of peat, till the heap is raised to a height of four or five feet, covering the whole with peat muck, so that the animal manure shall not be exposed to the air. Horse-manure I have preferred, but I use the manure of my neat stock in the same manner. I apply one load of manure to three of peat. This has proved, on the soils before named, a good manure for corn, rye, oats, and all the smaller grains. To this compost, when forking it over in the spring, I have added leached ashes with good effect. As wood ashes are difficult to be obtained, and command a high price, I have been induced to make experiments to ascertain whether peat ashes would not answer as well. And I have burned large heaps of peat toppings and partly dried peat for the purpose of making ashes. These, in their partial combustion, have given me *peat charcoal* in quantity sufficient to satisfy me that it is a very valuable fertilizer. This burnt peat I have mixed with the compost before described. In December, 1848, I ploughed an acre of loamy ground which had yielded a very light crop of hay. Early in the following May, I spread on this ground twenty-five cart-loads of the compost, each load containing forty bushels, and harrowed it, mixing it well with the soil, and soon after planted with Indian corn, putting no manure in the hill, and being careful to keep in the whole course of cultivation a perfectly level surface. The field was twice cultivated and hoed, and no weeds were suffered to grow. In the early part of the season the corn did not appear very promising, but the roots soon began to reach out in search of food, and by mid-summer the corn had a vigorous and luxuriant growth, and the severe drought which affected all crops under the common practice of cultivation, (manuring mostly or wholly in the hill, and piling up the soil about the corn,) did not cause the leaves to roll or injure it in any manner. My corn was planted at the wide distance of four feet, but at harvesting I had a crop which was estimated at more than sixty bushels to the acre. For

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number of the first volume, and the next day one of them informed us that he had readily found persons to take four of them. If we had not a farthing of interest in the work, instead of looking to it exclusively for a living, we would say, as we think, that every friend of domestic industry, whatever his occupation, ought to interest himself in the prosperity of "the Plough, the Loom, and the Anvil." Even he who does not believe in its doctrines ought to make haste to *read* and, *if he can*, refute them; for he may depend that nothing—no pestilential weed, as he may choose to think it—ever was spreading faster, or taking deeper root than is the doctrine we advocate: that is, that *for the benefit of the farmer and the planter*, we should encourage and build up the *home market*. England fixes the prices for us now: we must put ourselves in a position to fix the prices ourselves.—*Ed. P. L. & A.*

turnips, onions, carrots, and beets, this kind of manure has proved with me equally efficacious. On a cold or clayey soil its effects might not be so satisfactory. I might add that with this manure potatoes have almost wholly escaped the rot, while with long, coarse, and unfermented dung, they have suffered greatly.

In making a compost of peat, I consider it indispensable that it should be fully rotten and decomposed. Its effects on the soil are more lasting than any animal, mineral, or vegetable manure I have ever tried. Within the last eighteen months I have made more than five hundred loads of compost, of which peat was the principal ingredient. The cost is about $2·75 per cord: the same quantity of animal manure in that locality would cost about $6·00.

The expense of preparing for fuel a cord of peat is equal to the expense of preparing a cord of wood, and it will produce double the quantity of ashes. The relative value of wood and peat ashes is not fully ascertained, but my own experience teaches me that there is no substantial difference. The average quantity of peat to the acre where only a single spitting of two or three feet in depth is obtained, may be about four hundred cords; and in a situation favourable to its growth, the same ground may be cut over again after the lapse of about thirty years.

The common method of preparing peat for fuel is to remove the topping, consisting of the roots of grass and bushes, and then with an instrument made for the purpose, called a peat-knife, to cut out the peat in pieces about two and a half feet long, and four inches in thickness, and spread it on the surface of the ground, where it lies till it becomes so dry and hard as to admit of being handled without crumbling, then to stack it up in piles of about twenty pieces, so as best to admit the sun and air, and in two weeks of fair weather it becomes fit to house or to burn. It readily ignites, and makes an intense and steady heat. There are varieties of peat as of wood, but that which is hardest when dried is considered most valuable.

I have been able to answer your inquiries but briefly and imperfectly; and I can now do you and the farming community no better service than to refer you to the "Muck Manual" of Professor Dana. In that book is contained the most accurate, scientific, and practical information on the nature, composition, and uses of peat.

DANIEL P. KING.

Washington, December 13, 1849.

ON THE FIELD-CULTURE OF PEAS,

AND ON A DEPOSIT OF PEAT IN MARYLAND.

Near Annapolis, December 8, 1849.

JOHN S. SKINNER, ESQ.—*Dear Sir:*—You asked me, when I saw you last, whether I *read* "The Plough, the Loom, and the Anvil." I wish to give you some evidence that I have profited by it. You have called attention repeatedly to the use of the pea as cultivated in some of the Southern States, and published several valuable papers on the subject. A gentleman in the southern part of Virginia, several years ago, sent three or four parcels of favourite kinds to Dr. M——, who kindly gave me a portion of them. One of the kinds, a black pea, seemed to have the preference, from the fact that it was less liable to rot from exposure, and that being cultivated in the cornfield and fed or gathered, what remained might be relied on to seed the field. The land being put in oats in the spring, that crop would come to perfection, and then the pea would take possession of the ground, affording covering for the land, or food for stock, as might be desired

I have made one very satisfactory trial of this pea sown broadcast, and ploughed in with the seed of a crop of oats. The pea did not at all interfere with the oats, but took a start after the crop was harvested, and made a fine growth. If, on further trial, it shall be found that it may be grown in this way without interfering with the crops of grain, how readily it may be introduced into our established rotations, as a substitute for clover on all light soils, whether rich or poor—the clover being on such soils, as I know by experience, a very uncertain crop,—as a substitute for clover upon lands which, after corn, are sown in oats, because not considered good enough for wheat, and which are as unproductive of clover as of wheat. In the rotation which prevails in some sections where wheat is sown upon oat stubble, the pea might intervene with great advantage to the land and the crop of wheat. And upon wheat sown on clover fallow, how readily with a drill may the pea be sown in the spring! And instead of the great growth of "rag-weed," exhausting the land and harbouring all sorts of insects, how much better to have a crop which will fatten all the beeves and hogs, and enrich the land! I do not mention the most common mode of using it in the Southern States, that of sowing broadcast when the corn is laid by, because I think in this latitude we should not in that way get the full benefit of the crop. The great advantage of these suggestions is, that they may be adopted without interfering with any established practices, and that, with farmers, you know, is half the battle.

I have read the interesting article in your last number on Peat Charcoal as a Disinfector of Night-soil. This peat does no doubt exist in Maryland in great quantities, and enough has been already developed in the low grounds of Hon. John S. Sellman, Mr. John T. Hodges,* and myself, to sweeten Baltimore city. It burns readily when sufficiently dried, and the ashes, as it is called, has been proved by the gentlemen named an active fertilizer. I have also tested the ashes and the compost with wood ashes or stable manure, with similar results. It burns in heaps, and indeed, in the meadow, with a slow, almost imperceptible fire, with heat enough, however, to reduce oyster-shells to lime, as I have seen. It gives off a peculiar odour during the process of burning, and is reduced very little in bulk. The result of the burning in this way is, I have no doubt, the veritable "Peat Charcoal" spoken of in your article. It is called ashes here, from the fact that the lumps are very readily reduced almost to the fineness of ashes. I have a great deal more of this material than my own land will require, and if the citizens of Baltimore want their city "deodorized," I will furnish the "wherewithal" for a "consideration." I look forward to the day when "animalized charcoal" will stand at the head of the list of concentrated fertilizers offered for sale in that city.

This is a hasty Saturday night's letter, and not, of course, intended for publication. The facts are at your service.

Yours, with great regard, N. B. W.

"The facts" do not admit of condensation, nor of any better arrangement or expression than as they here appear—so we give them as we received them. One thing only could add to their intrinsic importance, and that would be the name of the writer—one of the most zealous, enlightened, and improving, because inquisitive and reading members of the Maryland State Agricultural Society.

It is said that "constant dropping weareth away stones." We have been for thirty years dropping testimony on the importance, to Maryland husbandry, of introducing, or rather extending the *field-pea culture:* not only for the value of the pea, but as a ready and convenient fertilizer. Well, here the mind of an intelligent farmer being given to

* See the correspondence, p. 440.

the subject, we see in his practice something promising as well as new—that is the combining of the pea with oats—making a sort of crop called *meslin*, or mixed crop, (melange,) mentioned in those, at the time, capital letters of the Rev. Mr. Elliott, of Massachusetts, on the Husbandry of New England, which Dr. Franklin recommended the publication of before the American Revolution.

We observe the same thing in the very excellent address of Senator Pearce—by the same thing, we mean the bringing of a clear, active, and anxious *mind* to bear upon agricultural questions. There, in his address, it will be seen, that he has overcome the most formidable difficulty in the way of cultivating lucerne, (that is, its liability to be overlaid, choked, and smothered in its infancy, by the growth of grass and weeds,) by the same expedient—*protecting it with a growth of oats*.

Here, too, we may safely say that we have fifty times called the attention of American farmers to the great value of lucerne for soiling—a value not to be disputed, except in our Northern States, where, we believe, it has been found unable to withstand the rigours of a northern winter. We shall add, in our next, the conclusive testimony of Senator Pearce to that of many others—among them that of the late gallant and venerable Col. John Eager Howard, of Maryland, and of W. Johnson, Esq., a most reliable man at Princess Anne, who cut over a lot four or five times a year, for eight or ten years, getting heavy crops for soiling his horses and cows.

The writer of the preceding letter will find, by the following, that we have not been inattentive to the subject of the peat discovered in his neighbourhood. If in all such cases the farmer does not get all the light that can be thrown on the subject, it will not be for want of good-will and willing labour on our part.

The letter of our esteemed correspondent relates to the substance referred to in the following letters. We expect a fuller account from Professor Kennedy, and in the mean time, will thank the writer of the preceding if he can send further specimens of the substance in its natural state, and as it is left on being burned, in an old segar-box, by friend Holland, the polite and obliging railroad conductor, to be left at the office of the National Intelligencer, Washington, for the Editor of "The Plough, the Loom, and the Anvil."

Office of "The Plough, the Loom, and the Anvil," November 13, 1849.

My Dear Sir:—I beg leave to enclose a letter from a very respectable citizen of Maryland, accompanied with a substance the examination of which seems to fall within the purview of your patriotic and useful Association for the Development of the Mineral Resources of the United States.

You would greatly oblige me if you could bestow on it a sufficient attention, before the last of this month, to enable me to make such communication to the writer, as might prove, in some measure at least, gratifying to his curiosity to know the nature of the substance to which his letter refers. As far as observation goes, you will perceive that the impression has arisen in favour of its proving to be a powerful fertilizer, and if so, it must be a deposit, very extensive and accessible, of great interest to agriculture.

To my mind, it presents another question of some interest: whether, when burned, it may or may not be used as a *deodorizer*, or powerful absorbent of gases, cheaply applicable to the preparation of *night-soil* for practical use as a manure. But you will readily apprehend, without any crude suggestions from me, the tests to which it should be subjected, and the possible uses to which it may be found applicable.

Regretting that so little time is afforded me for deriving from your association the benefit that could not fail to result from a more intimate knowledge of and participation in its proceedings, and again soliciting your kindness in the matter in question, I remain, sir, with very great respect,

Your obedient servant, J. S. Skinner.

To P. A. Browne, Esq.,
President of the Society for the Development of the Mineral Resources of the United States.

Baltimore, November 8, 1849.

MR. JOHN S. SKINNER.—SIR :—You will herewith receive a small package containing a specimen of earth taken from the farm of John T. Hodges, in Anne Arundel county, Maryland, about one mile distant from the Patuxent river.

This earth is found in a vein of low wet marsh land, extending in length several miles, and in width varying from one to three hundred yards, and for many years it was difficult to pass over it: within the last few years it has been very much drained by many ditches cut through it in various directions, and within the last few months, after grubbing some bushes and stumps from this marshy ground, with a view of clearing it up preparatory to timothy, it was found that in burning the rubbish on the ground, the fire burnt through the turf and ignited the clay underneath the surface, and is continuing to burn at this very moment. You can perceive the smoke ascending in various places through the turf of this marsh, and wherever you see the smoke you will find the surface quite warm to the touch.

By digging down in the earth where it is burning, you will come to a hot fire resembling much the burning of a lime or coal kiln. The circumstance of its continuing to burn seems to leave no doubt but this clay must contain more or less inflammable matter. You will find in the package sent to you a sample of unburnt clay and a sample of the burnt also, both of which were taken from under the turf, in the condition in which they are now exhibited.

You will find the burnt clay is easily made fine, and can be used with great convenience on clover, grain, or any other vegetation, if it should be found to possess any fertilizing qualities.

I was shown a lot of land of a few acres, one-half of which was covered with stable-manure, and the other half with the burnt clay made tolerably fine: it had been put on the lot about four weeks previous to my seeing it, and the result was *greatly* in favour of the clay dressing.

My object in putting you in possession of these specimens of clay, is to ask the favour of you, when an opportunity may offer, to have them analyzed, and to give me the particulars, by letter, as soon thereafter as may be practicable; in doing which you will greatly oblige

Your humble servant, BENJ. M. HODGES.

P. S.—If this clay should possess any valuable quality, the quantity I consider inexhaustible.

Philadelphia, Thursday, December 6, 1849.

P. A. BROWNE, ESQ. :—

President of the Society for Developing the Mineral Resources of the United States.

DEAR SIR :—I have pleasure in handing to you brief notes of a rough examination of specimens from Anne Arundel county, Md., transmitted to me through your politeness—regretting that your welcome note of yesterday could not earlier have refreshed my clumsy memory of dates with the forgotten fact that our Society met to-morrow night; and assuring you that your expressed desire to have a full report for our esteemed friend Skinner's journal, shall, should the subject warrant it, not be disappointed.

Of specimens herewith sent,

No. 1 is the unburned "clay."

No. 2 is the same after ignition.

As the ignited substance is that proposed to be used for agricultural purposes, I have confined my cursory qualitative testing to that, and find it to

consist of sesquiox. iron, the sulphates of alumina and sesquiox. iron, and of alumina with traces of phosphoric acid and of lime.

No. 1 is evidently very poor, incipient peat, so infiltrated with the silt of rivers as to be useless for fuel, and yielding whatever ammoniacal and other organic salts it may contain to the decomposing agency of fire. Hence the latter will not be found in No. 2, and *its* efficiency must depend on its mineral constituents. Of the absolute and relative quantities of these I hope to certify you at an early day.

Your obedient servant, ALFRED L. KENNEDY.

CULTIVATION OF PINE-APPLES.

WHY is it not attempted in America? Is it because "they would cost more than they would come to," like the Indian's gun? So do many flowers and other horticultural luxuries. For ourselves, we have no objection to see those who can afford it give their time and their money to such things. We want to see what *can* be done in all the arts, and especially in the useful ones: and besides, when wealth accumulates to a certain amount, (the great difficulty is to know *what* that is,) the sooner it overflows in almost any direction, irrigating poorer and dryer objects around it, the better for the public. We have observed about Savannah and Augusta, and Columbia, a very decided love of the ornamental in horticulture, but has any one attempted the culture of the *pine-apple*, which we should suppose might be much more easily succeeded in there than in France or England, where they have them, it seems, to attain the weight of *twelve pounds?* A writer in a late English paper says:—

"This great question of growing Ripley Queens as large as the one sent from Meudon, is decided, and that too most satisfactorily. Mr. Fleming, gardener to the Duke of Sutherland, at Trentham, has, as far as it is recorded, produced the Ripley Queen just 2 lbs. heavier than any other gardener in England. The one lately exhibited at Regent-street weighed 7 lbs. 10 oz. Others have been cut this season at Trentham, 8 lbs. 11 oz. The one shown was not a mere accidental production; there were many of similar size, for I went from London to Trentham to satisfy myself on the point. These were planted out as at Meudon, on a warm bed of soil. The air of the pit, and the soil in which they were planted, are both heated by hot-water pipes. No stable litter being used, the secret therefore could not lie in the gaseous emanations in this case. The proper situation for a pine plant is unquestionably planted out in the free soil, because it is much more favourable for the development of its true character; the roots can then stretch themselves out uninterruptedly in search of proper food, instead of being crammed into a pot with a hatful of soil to feed upon.

We have stated the size which has been already attained in this country by the planting out system of culture, but we by no means admit that this is any thing like the size that pines will yet attain, and in this opinion Mr. Fleming quite concurs.

The Meudon plan of pine growing has made, and is making, rapid progress all over the country. Gardeners express their satisfaction with it, because of its simplicity, and the large amount of trouble it saves them. I can state, from my own personal knowledge, that in twenty places where I have seen it adopted this season, not a single failure has presented itself; and although little obstacles may at first appear, they are soon overcome. It is true that where little bantlings only have hitherto been produced, 8 lb. Queens are not likely to be the result of the first trial; common sense tells us, that we should not take dwarfs as a promising stock from whence to breed giants; but no gardener need fear of obtaining equal weights with those at Trentham, or Meudon, by perseverance, neither will a really good cultivator be contented until he has reached the top of the tree, provided the means are afforded him for accomplishing his end.—*Mirabile Dictu.*

"NO HORN, NO CORN."

THIS is an agricultural axiom in England, to indicate the importance of *consuming the produce of the farm upon the land*—but very little or no value is set upon straw alone, as the material of manure. True, the incoming tenant generally agrees with the out-going one, to get out his grain and carry it to market, in consideration of his taking all the straw; but that is with a view, always, of employing other food, turnips or roots, in all cases, and generally oil cake, for feeding and for fattening sheep and cattle; relying on the straw, not for the amount of any considerable nutritious or fertilizing quality in itself, which is regarded as of little account, but rather to "fill up" the beast, and to take up and absorb his offal. We, in America, are far from estimating, as we ought to do, the bearing of the food on the *value of the manure.* We go too much for quantity, and too little for quality. In England they make nicer calculations. It is doubtful, whether any English farmer, under existing circumstances, would find his account in the mere sales of his cattle, for the expense of feeding them: there, what of the food goes to the increase of the *meat,* they call *going "to the head,"*—and what contributes to the value of the manure, they call going to "*the tail.*" It is to what goes to the tail that the English farmer has his eye, when he makes up his mind to fatten bullocks.

Lately, at the bar of the House of Commons, an experienced farmer, under examination by the "*Agricultural Customs Committee,*" being asked, if he considered that the beasts he fattened paid him in the increase of their *meat,* answered: "Far from that; so much so, that I once made an offer that I would give any one $5000 a year to fat 500 bullocks on my estate."

"You calculate that on the beasts you lose about £2 [$10] a head in the proceeds of the sale of the animal, and are only brought home by the *increased value of the manure* that is made by those beasts!"—"Exactly so." In the case of *sheep,* he thought he was a gainer by what went "to the head," independently of the manure, at the present price of mutton, which is twelve cents per pound in Leadenhall Market. Thus it is seen that the most enlightened farmers in England look upon the *manure of each beast,* fattened on the farm, as worth $10, or £1000 for 500 bullocks, if the owner of the bullocks would find the food. It is thus seen too, how much would be gained where circumstances would allow the farmer to expend his labour and capital in food for stock to be fattened on his farm, instead of sending it all away, to be consumed at a distance, retaining only the mere refuse.

The practice is gaining in England, to *cut up straw* where it is to be used, not only as food, but as litter. It then absorbs more readily and completely the liquid manure, while the process of putrefaction and preparation as manure is materially accelerated.

What a field there is for inquiry! How much there is to be learned in Agriculture, *if* farmers would only learn to—learn to what?—learn to *read and to think!!*

Not a month ago, the following prices ruled in the Leadenhall (London) Market, by the carcass:—

Prime beef,	per pound	8½ to 9 cents.
Mutton,	" "	11
Veal,	" "	11
Large pork,	" "	9 " 10 "
Small pork,	" "	12½

ON THE CONDITION AND PROSPECTS OF AMERICAN COTTON MANUFACTURES IN THE UNITED STATES IN 1849.

UNDER this title we find, in Hunt's Magazine, a very striking article from the pen of A. A. Lawrence, of Massachusetts, elicited, as Mr. Hunt says, by a communication "*on the production and manufacture of cotton, with reference to its manufacture in the cotton-growing States.*" The article to which we here refer, as has been well said by the editor, "deserves the careful consideration of our southern friends, about to engage in the manufacture of cotton goods, coming as it does from a gentleman of large experience, and a *thorough practical knowledge of the whole subject.*"

We wish we had room to copy the article in question, not to discourage Southern men from going into the manufacture, but to prevent them from being misled and finally disappointed and disgusted by exaggerated expectations of profit. Of that we could not be suspected, after the essay in the Farmers' Library, some two years since, under the head: "*Shall the cotton be sent to the looms, or the looms be compelled to come to the cotton?*" an essay which was copied throughout the South and West, and which we venture to say, gave a powerful impulse to public opinion and the employment of capital in the cotton-growing regions. But we want our friends to moderate their anticipations, and to look to manufactures as profitable chiefly by their affording a market for other products, and supplying a constant demand for labour that would otherwise be unemployed.

Mr. Lawrence is far from being opposed to the extension of the manufacture of cotton in the South. His object is to correct misstatements, and to give timely caution, demonstrating by proof the truth of his statements.

He gives the market and the par value of shares in all the first class cotton manufacturing establishments in the North. Of these, out of twenty-seven there are but three that are not under par—many of them very much below par.

We shall probably give the whole article in our next. No one can be more thoroughly impressed than we are, with the indispensable importance of a policy that will tend to diversify labour and concentrate population, for the prosperity of agriculture; but let no man be tempted by one-sided views, or by his own enthusiasm, to *leap in the dark*. Hear both sides, compare, and *look before you leap*.

ON BLANCHING CELERY.

IN an account of Dalkeith Palace, the seat of the Duke of Buccleuch, a curious fact is stated about the management of his celery, in which there is nothing so extravagant as to prevent its affording a practical hint to American gardeners, or, at any rate, to some of our wealthy amateur suburban farmers. The celery is encased each trench within two common draining tiles, and the earth built up to them. The tiles about ten inches long, and one placed on another, as the celery proceeds in its growth. Thus, two sets (or four) of tiles will give twenty inches of blanched celery, and the tiles may be laid aside for use again.

A London paper, of October 20, 1849, says, that "Sweet-oil has been found a cure for mildew which affects grapes: the stems are brushed with the oil daily."

ON THE BEST MODE OF DIVIDING A FARM.

We cannot permit the following to go to the printer, without saying how much it gratifies us to enrol among our correspondents one who has so long honoured us with his friendship and confidence. The writer is one of the high-bred gentlemen and pure patriots of the olden time: going back for education and early recollections and associations to the time and company of such men as Jefferson, and Madison, and Monroe, and Rufus King, and Adams, and Marshall, and Judge Brook, ay, and even to the days of *Washington* himself.

King George County, Virginia, September 12, 1849.

To the Editor of the Plough, the Loom, and the Anvil.

Sir:—In the 2d vol. of the Plough, Loom and Anvil, No. 3, for the month of September, 1849, I see that, at the request of one of your correspondents from Charles County in Maryland, you are pleased to invite some one to answer his inquiry as to the "best mode of dividing a farm; having in view the raising of clover for the improvement of the land; the keeping a good pasture for milch cows, and economy of fencing." Availing of your invitation to do so, I shall, after some preliminary remarks, suggest a plan which, according to my experience, would be the most advantageous arrangement of a farm devoted to the production of wheat, corn, and clover, as *primary objects of profit.* Though this inquiry of your correspondent involves considerations, in my humble judgment, of vital interest to all farmers; yet there is no matter as to which a greater variety of opinion and practice exists, than as to the most beneficial mode of subdividing a farm, *primarily devoted* to the production of grain and clover. Accordingly, some divide the productive portions of a farm into three fields, or shifts; some into four; some into five; and some into six; all under separate enclosure, involving a heavy devotion of materials and labour. As only two of those shifts are by rotation annually put one in corn, the other in wheat, the consequence is, as the case may be, that one-third, one-half, three-fifths, and four-sixths of a farm thus divided remain *annually unproductive;* and those plans are severally adopted under, I respectfully think, the erroneous assumption that land derives *direct* benefit from *rest.* To illustrate the error of all such subdivisions of a farm, I assume, what must appear obviously correct, that it is as much to the interest of him whose capital is land, so to manage as to derive profit from every acre of it *annually* in *some form* or *other,* as it is to the interest of him whose capital is money so to manage as to render *every dollar* of that capital annually profitable to him; and that a moneyed capitalist who should annually lock up, or *designedly* keep in an *unprofitable condition,* a large portion of his capital, would by common consent be considered a bad manager, if not a fit subject for an asylum. In the same category is every landed capitalist who *designedly* allows, in the manner above stated, such *large portions* of his land to remain *annually* and *for years unproductive.* I also assume that all who acquire title to land, whether by purchase or otherwise, should decide on the object to which it was to be devoted; whether *primarily* to the production of wheat, corn, and clover; or to the rearing of stock; which, by the way, I consider two very distinct applications of land, though very commonly associated by many, to the *certain exhaustion* of the *material* which *ought* to *return* to the *land,* as *aliment* to plants. I allude to the too common practice of allowing stocks of all kind to graze and trample on fields *primarily* designed to produce grain. The earth is the *recipient* and *depository,* in fact the *nursery,* of all the *animal, vegetable,* and *atmospheric material necessary to the growth* and *maturity of plants;* which material, when digested and decomposed by heat and moisture, and held in solution by rain, is, by the earth, as a kind nurse,

fed away to plants through their roots, as the calf draws milk from its dam through her teats. By the operation of natural causes some regions of land are amply stocked with vegetable food, and so constituted, *if unmolested*, as to retain it for ever; while there are other regions, owing to their physical formation, deficient, and some entirely destitute of the necessary food for the growth and maturity of plants. It is therefore the obvious duty of all who own and desire to derive *profit* from land, so to manage it as to prevent an undue exhaustion of the vegetable food it may contain; as in the first case; and to supply, by artificial means, a sufficient stock of it, when found deficient from natural causes, or has become so *by injudicious management*. Having premised the foregoing views, I will go on to suggest a plan for the most beneficial division of a farm, *primarily designed* for the production of wheat, corn, and clover; having in view the improvement of the land, economy in fencing, and support of *such stock only* as may be *necessary* to the operations of the farm, and for domestic purposes; that being, in my humble opinion, the *utmost amount of stock* which can be beneficially sustained on such a farm. The first thing done by the owner of a tract of land should be, to reduce it to his *actual possession*, by a good fence on its *boundary lines*. Too many neglect to do this, and large portions of numerous tracts become dead capital for the want of enclosure. Having done this, he should decide what portion of the land he will devote to the production of wheat, corn, and clover. That portion should be enclosed in a body, by a fence around it, and divided into three equal lots or shifts; and as a preparation for the permanent rotation of crops to be recommended, I propose that one of those lots, being in due time well prepared, and at seed-time having all the manure that the farm can supply, aided by a liberal dressing with lime, is to be sowed in wheat after being immersed in strong brine and rolled in lime, by or before the 15th of September, 1849. In the spring of the year 1850, one other lot, having been in the previous month of November liberally dressed with lime, is to be put in corn; and after the cultivation of it is complete, say late in August, or very early in September, it is to be sowed in clover, to be harrowed in among the then standing corn; and as soon as the clover-seed germinates, it should be dressed with a bushel of plaster-of-Paris to the acre; and the same quantity to be put on this clover as soon as it begins to grow, in the spring of 1851. In the spring of the year 1850, the remaining lot is to be sowed in oats moistened in brine and well rolled in plaster-of-Paris. Early in August, 1850, this lot, from which oats have been taken, is to be ploughed, and at seed-time, having all the manure put on which the farm can afford, to be aided by a liberal dressing with lime, is to be sowed in wheat, as above directed. In the spring of the year 1851, the lot from which wheat was taken in 1850 is to be put in corn, to be followed by clover as above directed. And in July, 1851, the clover which followed the corn in 1850 is to be well ploughed in, and that lot, being prepared in all respects as above directed, is to be put in wheat, by or before the 15th September, 1851. Thenceforward corn is to follow in the lot from which wheat was taken in 1851. So that, in regular rotation, corn is to follow wheat, clover after corn, and wheat after clover. And after two rotations, as prescribed, the first crop of clover may be taken for hay, and thus render *every acre* of the *land devoted* to *production annually profitable;* since, upon this plan, one lot will annually produce a crop of wheat, the second lot a crop of corn, the third lot a crop of clover hay; thus leaving no *dead capital*.

The residue of the farm should be enclosed in three lots of nearly equal size. One of these should be annually, in regular rotation, devoted to the production of potatoes, turnips, oats, pumpkins, peas, beans, &c. &c., to be followed by suitable grass-seeds. The other two for pasture, for such stock,

and *no more*, than the *necessary operations* of the farm require, and for domestic purposes; these to be pastured on alternately two weeks at a time; —for while there may be a difference of opinion as to a *direct* benefit to land from *rest*, all who have observed must admit the *positive benefit* to *grass* which for a few days only is *exempt* from *stock*. Thus it is, that every acre of a farm may be rendered annually profitable, and that without an injurious exhaustion of its vegetable food, and at the same time materially diminish the amount of fencing. Assuming that all which is necessary to the growth and maturity of plants is a sufficient stock of vegetable aliment in the land on which they grow; and that this aliment is generated by the land from all animal, vegetable, and chemical material incorporated in it; the plan proposed above for the three productive lots must necessarily continue them in that condition. For example, wheat after clover, as prescribed above, must, beyond question or doubt, charge the land with a superabundant stock of aliment for the growth and maturity of that crop; and when the ample stubble left by the wheat, the clover and other grasses, and weeds which spring up after harvest, shading the earth from the injurious action of the sun during summer, and from the rigour of winter, are, in the preparation in March for corn, turned in by a sufficient plough; and by the same operation, the mass of clover and other matter turned into the land by the operation of the fallow for wheat and now all decomposed, shall be turned up and commixed with the land in which the corn is planted; there must be a sufficient stock of aliment for its growth and maturity. After this corn comes clover, which leaves the land well covered by it and the luxuriant vegetable growth after corn one year at least, when it is turned into the land, as aliment for a crop of wheat.

In addition to the all-important consideration, that this plan leaves not *an acre* of a farm unprofitable and *dead capital*, is the fact, that fields left at rest one, two, three, and even four years, become infested with all sorts of shrubs, noxious weeds, and grass; insects of all sorts, among them cutworms, so ruinous to corn and other plants. All this, the annual cultivation of land on the plan proposed obviates, and at the same time the land is kept in a more absorbent condition, and inhales much more abundantly the fertilizing influence of the atmospheric air, and imbibes more readily the essential matter of all animal and vegetable matter decomposed on its surface. To graze land, primarily devoted to the production of grain, I consider agricultural *murder* in the *first degree*. And to allow it to remain unproductive for years, I consider an injudicious *sacrifice* of *interest*. For, that land derives no *direct* benefit from rest, must be evident to all who will carefully consider the matter, and refer *effects* to their *true causes*. The same means are necessary for the growth and maturity of plants that are indispensable to the growth and maturity of animals. Food is necessary as much to one as the other. And as no good farmer works his ox or horse without suitable food, so no one should put a crop of any kind on land which does not contain a sufficient stock of pabulum for the growth and maturity of it; the earth being truly to plants, what the manger is to the horse, a *depository of food*. And as the cow administers milk to her calf from her milk-bag through her *teats*, so the earth administers aliment to all vegetables and plants through their *roots* which plants send forth in *pursuit of food*.

Submitted, not by a regular correspondent, but your old and very sincere friend,— JOHN TALIAFERRO.

We should apprehend it would be very tedious work to renovate a worn-out farm, without more barn-yard manure than this system would give. The writer goes on the supposition that *plaster-of-Paris* will act on the land; but suppose that not to be the fact, as is the case for example over the Eastern Shore of Maryland. There is but a small

portion of that where it will produce any visible effect; and then, again, in how large a portion of the country is *lime* too distant and too dear to admit of being used? What would it cost in Fauquier and Rappahannock? At what price—how high a price can the farmer afford to use? and where get the money to buy? There are no banks that will discount his paper for that purpose—not even "Planters" Banks, and "Farmers" Banks.

Is it really so, that it is impracticable in our country to raise root crops to feed cattle? Yet see what enormous crops are raised, of turnips, potatoes, carrots, &c., on quarter acres, for Societies' prizes for the last thirty years? It were to be wished that it was possible to have, in the census, a return of the length of line of fences—stone and timber fences—in the United States. The quantity of labour and capital bestowed in that way, in any single county, would strike any one with amazement, if fully set forth.

TO OUR READERS.

Some of you may be impatient at the space occupied in the discussion of the bearing of the Tariff laws of our country on the interests of the *farmer and the planter*, yet it is difficult to imagine any thing more directly interesting to any sensible and thoughtful man, who desires to know, as all such men must, the tendency of measures of government, to elevate or to depress the industry on which he relies for his support and well-being! We pray of all such to lay aside, if possible, all party prejudice, and to bring their unbiassed judgment to bear on these articles. They are from a gentleman who has made such subjects his study—who has no view to, or connection with, party—or care about any of the offices or patronage which party or power has to bestow. The writer is moreover a friend of free trade, to be obtained, as he believes, by resistance to the colonial policy of England. We believe we can promise to all who desire thoroughly to understand this most important of all economical questions, that in these chapters they will find the most thorough exposition of the subject that has ever yet been presented to impartial readers, who desire, like ourselves, not to be fortified in any favourite theory, or any chronic prejudice; but to *arrive at the truth!*—and we trust it must be gratifying to every benevolent mind, to be led by truth, to the welcome conclusion that, according to the laws of God and of reason, there is between the interests of all the industrial classes of our country, a friendly coincidence—that, in a word, whatever prejudice and contracted views may suggest to the contrary, as between them,

"All discord's harmony, well understood!"

Those readers whose opinions are irrevocably formed, or who have no taste for such disquisitions, shall be requited by an additional quantity of matter in subsequent numbers—we won't say more practical matter—for what can be more practical than that which teaches the true foundation of a nation's prosperity in agriculture, and the true nature of the relations between the *plough, the loom, and the ship?*

DAIRY ITEMS.

We could profitably occupy some pages of our journal with several extracts from the pages of an interesting Report on the dairy husbandry and products of Essex county, Mass., where local interests and the sagacity and intelligence of the people have contributed to secure great advancement in that branch of rural economy, were it not that so many things are pressing for admission. We doubt if there be in the Union a district combining a greater share of practical industry and economy, with more general and higher intellectual cultivation. What has for us a peculiar charm, in the proceedings of this, among the oldest societies in the Union—one with which is ever associated the venerable name of that zealous and practical friend of agriculture, T. Pickering, (who honoured us with his correspondence and good wishes in olden times,)—is, the directness of purpose and strict impartiality with which they always go to their work, their evidently clear comprehension of what may be called the philosophy or true aim of all such associations, their rigid impartiality and contempt of all clap-trap expedients for gaining individual or popular favour and support; and, after all, if not above all, the admirable perspicuity with which their decisions, and the grounds of them, are set forth in the accounts of their proceedings.

By-the-by, we should be glad to contribute, gratuitously, any thing within our possession or reach to the library of this ancient association which we see they are forming, and to collect, were that possible, at any cost, a complete set of their Annual Reports. Will the unknown, but not un-*guessed*-at friend, who sent the Report, please forward another to Washington.

The Committee say in their

REPORT:

We present, in a tabular form, an abstract of the several statements, supplying deficiencies by the *best guesses* (exercising our privilege as Yankees) in our power to make.

No.	Name.	Residence.	Cows.	June, av. to a cow. lbs.	4 months av. to a cow. lbs.	Total. lbs.
1.	John Stone, jr.	Marblehead	4	45	155	620
2.	Daniel Putnam	Danvers	6	30	120	720
3.	Elijah Pope	"	4	28	111	444
4.	Charles P. Preston	"	7	30	112	784
5.	George Pearson	Saugus	6	30	109	654
6.	Nathaniel Felton	Danvers	8	32	110·5	884
7.	Jonathan Berry	Middleton	8	30	97.8	790
8.	Duncan McNaughton	Byfield	5	25	94·5	490
9.	John Preston	Danvers	4	26	91·5	366
10.	Nathan D. Hawks	Lynnfield	4	25	85	340

This shows an average product of *one pound* to a cow *daily*, through the month of June, and *seven-eighths of a pound daily* to a cow, for the four months from May 24 to September 24.

When the extraordinary drought of the months of August and September are taken into view, as also the family consumption of milk before adverted to, it is but fair to say, that the statements presented the present season, give evidence of a production of *one pound of butter daily* for each cow, for the four best months of the season.

Butter made in Orange county, New York, has the highest reputation in the market—so much so, that most New York butter passes under that name. Here the milk is churned, and not the cream. It is said "to give a peculiar firmness and fineness of texture, and wax-like appearance when it is fractured, which butter made by churning the cream seldom or never has." The art of making Orange county butter is said to be in the women, and not in the cows or pastures—you take a good dairy-maid from there, and she will make equally good butter, hundreds of miles distant. In churning the milk, it takes about one quarter part more to produce a pound of butter, than it does when the cream is severed from the milk.

On examining the products of Mr. Hall's dairy, of Chemung county, who took the first premium in the New York State Society, 1846, we find nineteen cows yielded 3189 lbs. of butter, in 180 days, or about 168 lbs. to a cow. In the same time, our fifty-six cows yielded 9174 lbs. of butter, or 164 lbs. to a cow. This comes so nearly up to the products of New York State, that we are satisfied our farmers, by proper attention to selecting their cows for the dairy, can, if they will, do as well as the best. Let them apply their true Yankee tact in this matter, and they may challenge the world.

NOTE.—As a matter of curious information, we have collected in a condensed form, the products of several of the most extraor linary cows in Massachusetts, that have come to our knowledge.

Date.	Name.		Weekly produce. lbs.	Length of time. Weeks.
826	Oakes Cow	Danvers	16	16
824	Nourse Cow	"	14	16
1828	Sanderson Cow	Waltham	14	16
1830	Homer's Cow	Bedford	14	12
1830	Hazeltine Cow	Haverhill	14	12
1830	Barrett Cow	Northampton	15	12
1845	Buxton Cow	Danvers	16	12

These cows show a product of more than two pounds per day, each, for a period of three months. We think it would be difficult to collect together such a herd.

CULTIVATION OF GRAPES.

We shall continue to "harp" on this subject as long as we see the country filled with large land-holders, who are ever ready to give days and dollars to the success of political slang-whangers, and to spend their time in idle and frivolous dissipation, and yet have not the resolution and the spirit to plant and prune and cultivate a single vine of the Catawba or Isabella grape, for the supply and satisfaction of their family with delicious table-fruit for weeks and months—for even a single vine, as has been demonstrated for years by Dr. Gideon B. Smith, of Baltimore, and others, would be all-sufficient. For the present, we content ourselves with giving a short scrap from the London Gardeners' Chronicle, of late date, and Dr. Underhill's letter, which is a reply to one we addressed to him in consequence of having received one from some friend, whose name we cannot for the moment remember. Should this meet his eye, he will see that we were anxious to satisfy him, by information from one who has the benefit of very long and very enlightened experience. We will turn to "The Cultivator" as soon as we can, for the more particular information alluded to:—

Importance of Leaves.—I may state, that after Mr. Frost's early forced Grapes are all cut, he permits the lateral shoots to remain on the vines, alleging as his reason for doing so, that these young shoots, with their fresh foliage, maintain the roots in activity through the summer months, whereas if the vines are kept clear of laterals after the principal leaves have withered and fallen off, the roots become torpid at an early period, through the want of foliage to excite them into healthy action. I would recommend all who have the opportunity of selecting their soil, to choose loam that lies upon a porous subsoil, and that feels soft and soapy when rubbed between the fingers. A mixture of such soil, with a fourth part of half-rotten farm-yard dung, and another fourth of whole bones and mortar rubbish, will form a border in which vines cannot fail to do well, if it is made shallow (from 2 to 3 feet deep, according to the situation,) wide and well drained at bottom. The grand secret in growing good grapes is to get an abundant stock of healthy roots, and this cannot be done in a cloggy, adhesive border.—*J. B. Whiting.*

Mildew on Vines.—I am convinced from experience, that what you have written on this subject is perfectly correct. Sulphur will kill mildew, if it be applied the moment it appears. I mix the sulphur with water and then use it. Neither hot water nor sweet oil will cure mildew. It has been very bad with us here this year. Mr. Roberts thinks that our borders must be at fault; but I am of opinion that the border has nothing to do with it. It makes its appearance under all circumstances and conditions, and even our best grape-growers have lately been much annoyed with it.—*I. K.* [No doubt.]

DR. UNDERHILL ON DESTROYING THE ROSE-BUG ON VINES.

New York, Nov. 25, 1849.

J. S. Skinner, Esq.—*Dear Sir:*—I have just laid my hand on a letter I received from you, relative to the rose-bug, my experience of the best manner of keeping my vineyards clear of its ravages, &c. I should have returned you an answer sooner, if I had not mislaid it. I must refer you to a communication I made to the Editor of the Cultivator, some four or five years since, on this subject; premising, however, that I take the rose-bug from my grape vines (while in blossom) *by hand*, passing a small cup, with some water or soap and water in it, under the part of the leaf or young cluster on which the insect is placed, touching it at the same time, he will fall at once into it. A few men will remove them very rapidly from the vineyard in this manner. We attend to them for ten to twelve days after they first show themselves, by passing round near the circumference of the vineyards, where they are most abundant. By destroying them every year they will become less troublesome.

Yours truly, R. T. Underhill.

CUMBERLAND ONE-HORSE CART.

It was expected that one of these carts would be exhibited at the Norwich Meeting of the Royal Agricultural Society, but as this was not the case, we have been supplied by Messrs. Ransomes and May, of Ipswich, with the following particulars of one which has been sent to them by our own correspondent, "L. V. R.," see *Agricultural Gazette*, May 12, page 298 :— The one-horse cart we have received from Cumberland is a specimen of good workmanship, and of the proper application of materials. It is reported to us as usually carrying a ton of coal; and with large coal, not friable, we do not doubt this quantity can easily be packed on it, but it would not hold near so much of Newcastle coal, which cannot be heaped much above the sides. The strength of the framework and wheels is quite adequate to even more weight. The following particulars are taken carefully from the cart itself :—

	ft.	in.		ft.	in.
Length of body inside at top,	5	4	} average	5	1
Do do. do. at bottom,	4	10			
Width inside at top,	3	7½	} average	3	3¾
Do. do. at bottom,	3	0			
Average depth of sides,				1	3½

The cubic content of the body, without heaping, is therefore 21½ cubic feet. There is a light framework attached when straw, hay, or similar material has to be carried, which consists of two cross pieces of ash, each 4 feet 11 inches long, 2½ inches deep, and two inches wide, resting on and bolted to the top rails of the cart-sides, close to the ends. On these cross pieces are fastened two longitudinal bars of ash, 8 feet 5 inches long, 2½ inches deep, by two inches wide; and these are again connected by three other cross-pieces, 4 feet 11 inches long, 2 inches wide, by 1¾ inches; one in front, another 13 inches therefrom, and the other at the back end. This frame, when in its place, projects about 2 feet 2 inches from the front, and about 1 foot 1 inch from the back of the body of the cart. The wheels are 4 feet 3 inches in diameter, with 12 spokes and wood naves. The tire is 2½ inches by ¾ inch thick; the fellies 3 inches deep by 2¾ wide; iron arms and boxes; the diameter of the former, at the shoulder, being 2⅜ inches, and connected together by a bar of iron bedded in a wood cross-tree 5 inches by 4¼ inches, and upon this are three blocks, 6½ inches deep, to raise the body of the cart. The naves are 11½ inches diameter, and the same in length. When the shafts are horizontal the floor is 3 feet 3 inches above the ground, and in this position the inside of the fellies of the wheels at the ground are 4 feet 1 inch apart, and at the highest part 4 feet 7 inches, and taking the distances at the front and back at the height of the centre, they are 4 feet 3½ inches, and 4 feet 4¼ inches respectively.

	cwt.	qrs.	lbs.
The weight of cart without frame,	6	0	20
The weight of the frame,	0	1	26
Total,	6	2	18

The total length of shafts and cart, 13 feet 7 inches, and the size of the shafts at the front end of the body, 4½ inches by 3¼ inches. As the shafts form a portion of the frame of the body, the cart does not "tip" or "tilt." When the cart is empty and the shafts horizontal, the bearing weight upon the backband is 33 pounds.—*Ransomes and May, Ipswich.*

THE YEAR THAT HAS PASSED, AND THE ONE THAT IS TO COME,

WHAT OF THEM?

THE Editor of "*The Plough, the Loom, and the Anvil*" greets his patrons and friends with the compliments of the season, and hails the new year, in the hope that it comes pregnant with the elements of accumulating progress in knowledge and virtue, the best of all securities for the peace and happiness of the world.

Without meaning to inflict on our readers the old homily, on the obvious duty of us all, to review the past, in a spirit of determination to reform the future; we must take leave to tender them, very sincerely, our best wishes for many happy returns of the season; and the assurance of unfeigned gratitude, for the countenance and support they have contributed to this journal, its editor—its objects—and its principles. And here, as to these objects and principles, the occasion must be embraced to ask, that when any friend of "*The Plough, the Loom, and the Anvil,*" shall hear it charged with indicating *party* spirit and aims, in the usual acceptation, they will, in our name, as we do here, most solemnly deny the charge, and *challenge the proof of it!*—unless there be the spirit of *party*, and not of a broad American patriotism, in our desire, avowed from the first, to see carried out, in our legislative action, that old *distinguishing* and *characteristically republican doctrine*, which, as all well know who are old enough to remember it, taught us to foster a policy that would protect, develope, and bring into full play, the resources which a bountiful Providence has bestowed on ours *above all countries on the globe*—unless there is in fact the narrow and baleful spirit of party, in preaching the doctrine avowed by *General Jackson*, when he said "*we have been too long subject to the policy of British merchants, it is time that we should become a little more Americanized.*" It is, we conscientiously believe, that policy of the "British merchants" and British government, which disturbs and deranges the natural course of industry, and retards the growth and prosperity of every country in the world that submits to it. It is in resistance to that colonial policy of England, for the enforcement of which she starves her own people, and taxes the industry of the world, that, in our sincere belief, is to be found *the only road to real freedom of trade!* If, in such resistance, there be any sign of *party* spirit, it is, we admit, under that sign that we have enlisted; *because*, and only because, we believe that the agriculture of no country ever did, or ever can flourish under any other. With this, we hope final explanation, we shall go on, endeavouring to show, against the impious doctrines of the Malthusian school, that there is in the benevolent designs of Divine Providence, a *real and perfect harmony of interests* between all the great industrial pursuits of our country, when those designs are not perverted by false legislation, based on false principles of economy; principles which would fore-doom the human race, and persuade us that its growth and progress is for ever to be restricted by inevitable poverty, misery and crime, and these *of Divine appointment!* We thank God, that such is not our politics—such is not our religion—we believe that Providence gave us the coal to be mined, the ore to be smelted, and our water-powers to be improved, and not to be left yet for ages unemployed, as before the Revolution, to subserve the *colonial policy of England.* And here we shall content ourselves with adding, with indignant denial of all party spirit and party designs—that in thirty years of public service, in various and very responsible trusts, pecuniary and confidential, under appointments from MADISON, MONROE, ADAMS, JACKSON, and HARRISON, during which very many gentlemen have

received and held their employment and income at our discretion, we defy any one, and here publicly call upon all who have been our colleagues or subordinates to say, that we ever, on any one occasion, inquired into, or intimated the least desire to know, the political sentiments of any individual among them. It was, in fact, our invincible determination never to look to any thing but character, fidelity, and capacity, that caused us to be *Vanburened* out of one office and *Polked* out of another, though it was well known, in both cases, that, for the time, we should be left utterly destitute of all present means of support, except our own industry and *never-failing willingness to work.*

One word more. During more than thirty years that we have controlled agricultural and other publications devoted to industrial and liberal pursuits, there never has been a time, *nor is that time now*, that any man could get permission to insert a *single line*, with a view to *mere party aims or influence.* And hence it is that we reiterate that all charge or insinuation of having any thing to do with, or any care about the rise or fall, the success or the defeat of this party or of that, so as far as this journal is concerned, is here flatly denied, and again we *challenge the proof.*

Our firm persuasion is, that if this question of encouragement and protection to American labour, and capital which gives employment to labour, could be withdrawn from the arena of party, to which the people are summoned by demagogues to look at it, with their passions and prejudices previously excited and inflamed, as are the friends of two pugilistic combatants in the ring, that in that case, viewing it calmly as a national question, it would be considered as essentially one of *American independence*, or of dependence on the policy of British merchants and monopolists; and that the verdict in favour of protection against the more than half-starved and not half-paid labour of Europe would be as preponderating as was that of the voice of our ancestors in favour of the *declaration of the 4th of July*, 1776! But it is *only and strictly* as an *agricultural question*, one that has a direct bearing on that great interest that we look at or care about it.

Entertaining these opinions, and having resolved and promised to devote all our remaining time and capacity to discover and point out the *true and only foundation* for *general agricultural advancement and prosperity;* would we not be derelict in our duty, ought we not to be ashamed to look an honest farmer in the face, if we did not follow the course we are pursuing? If gentlemen believe we are wrong, why do they not answer us? Have we refused to publish any man's argument? On the contrary, have we not gone out of our way to publish the dissertations of those who have *so politely* denominated ours as "absurd"—"ridiculous"—"contemptible?" Is it because it is much easier to denounce than to refute? Of one thing they may be assured —the poison, if such they consider it, is spreading with prodigious rapidity; and if they have any antidote to apply they are bound to lose no time, for the day is coming, and not far distant, when American farmers and planters will see that the nearer the loom and the anvil, as well as the grist-mill and the saw-mill, the *better for the plough!* That it *is* time, to use the language of Jefferson, that we should place the consumer by the side of the producer!

☞ We have several very able agricultural addresses, from which, if we could find room, we should be glad to take extracts at least—for it would be impossible to give them in full. We hope to make up in our next for the want of variety in this number.

☞ All letters merely on the business matters of this journal, will be addressed to us as usual at 79 Walnut street, Philadelphia; but all of a more particular kind, requiring personal attention, had better be addressed at once to Washington, D. C.